Department of Defense Use of UN/EDIFACT Standards ...A Readiness Study and Migration Strategy

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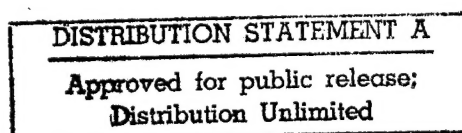
EDIFACT

One World . . . One EDI Standard

Stephen Luster, Lisa Janssen, and Kathleen Miller
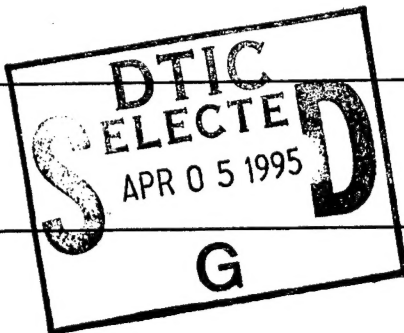
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The Department of Defense supports the use of electronic data interchange (EDI) and the eventual move to a global EDI standard. DoD is committed to working with the standards-making bodies, other agencies, and industry to make that end a reality. The issue for DoD to resolve is which EDI standard to use. In the early stages of its electronic commerce program, DoD adopted the use of Acredited Standards Committee (ASC X12) EDI standards for exchanging routine business information both internally and externally. A current worldwide trend to use UN/EDIFACT EDI standards suggests that a practical DoD policy over the long term would be to suppport United Nation/Electronic Data Interchange for Administraton, Commerce and Trade (UN/EDIFACT) as a single worldwide standard.

We examined four areas: trading partners, systems, infrastructure and workload. We found DoD to be progressing toward the insertion of EDI technology to support the routine exchange of business information. DoD must now define its EDI strategy for the future and align that strategy with emerging Federal policy on the use of EDI in the Federal procurement process. This report discusses DoD's readiness to migrate to UN/EDIFACT, compares ASC X12 and UN/EDIFACT, and provides recommendations and a strategic direction for migration.

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Executive Summary

A recent executive memorandum[1] charted an ambitious schedule to implement electronic data interchange (EDI) in the Federal procurement process. That memorandum articulated a role for EDI and demonstrated a clear commitment to its use.

The Department of Defense has consistently supported the use of EDI and the eventual move to a global electronic data interchange standard. DoD is committed to working with the standards-making bodies, other government agencies, and the private sector to make that end a reality. The issue for DoD to resolve is **which EDI standard to use.**

Today, two predominant standards systems are used for the exchange of electronic information:

♦ Standards promulgated by the American National Standards Institute Accredited Standards Committee (ASC) X12, used primarily in the United States

♦ United Nations Electronic Data Interchange for Administration, Commerce, and Transport (UN/EDIFACT) standards, used mostly outside the United States, predominantly in Europe.

In the early stages of its electronic commerce program, DoD adopted the use of ASC X12 EDI standards for exchanging routine business information with its private-sector trading partners. DoD also uses ASC X12 EDI standards for many of its internal systems such as the Defense Logistics Management System. A current worldwide trend to use UN/EDIFACT EDI standards suggests that a practical DoD policy over the long term would be to support UN/EDIFACT as the single worldwide EDI standard.

In recognition of the worldwide trend toward the use of UN/EDIFACT standards and the current DoD use of ASC X12 standards, this report describes the state of DoD readiness to adopt UN/EDIFACT EDI standards.

The report examined readiness in four major areas: trading partners, systems, infrastructure, and workload. While DoD has made substantial progress in the use of EDI, most of its efforts to date have been based on the use of ASC X12

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[1] Presidential Executive Memorandum, subject, *Streamlining Procurement Through Electronic Commerce,* October 26, 1993.

standards. Thus, additional work remains before DoD will be ready to use UN/EDIFACT.

Notwithstanding the current use of ASC X12 EDI standards, we recommend that DoD adopt and vigorously support a single EDI standard for exchanging business information, and that single EDI standard should be UN/EDIFACT. Adoption of that policy now will enable DoD to develop the trading partner agreements, systems, and infrastructure it needs to migrate to UN/EDIFACT.

The timing of the DoD migration is crucial. If DoD migrates too soon, it may find itself without a substantial number of trading partners. A lack of trading partners would adversely impact readiness. Also, DoD has not yet determined whether its business functions can be accommodated easily by existing UN/EDIFACT standards. Our experience with ASC X12 EDI standards indicates the likelihood that considerable work remains before DoD can adopt and use UN/EDIFACT standards.

We recommend that DoD not migrate unilaterally to an exclusive use of UN/EDIFACT standards. Such a move would cut DoD off from the majority of its current and potential trading partners, and those partners are needed if DoD is to maintain readiness and realize the economies and efficiencies it anticipates as it changes from a paper-based system to EDI. DoD should, however, take an active leadership role in the migration process. We also recommend that DoD take the following, more orderly, phased approach to its eventual migration to UN/EDIFACT:

◆ Allow market forces to determine the migration to UN/EDIFACT standards

◆ In the near term, continue to use ASC X12 standards to exchange business information with trading partners

◆ Add the ability to support UN/EDIFACT standards to the technical infrastructure

◆ Participate in the UN/EDIFACT standards-development process and ensure the standards contain required DoD business functionality

◆ Support trading partners that use either the ASC X12 or UN/EDIFACT standards

◆ Support UN/EDIFACT-based pilot projects to build early experience, demonstrate commitment, and evaluate impacts.

In summary, we found DoD to be progressing well toward the insertion of EDI technology to support the routine exchange of business information. It must now define its EDI strategy for the future and align that strategy with emerging commercial practices and Federal policy on the use of EDI in the Federal procurement process. If it does, we believe DoD will be well positioned for an eventual migration to UN/EDIFACT in a manner most beneficial to itself and its worldwide trading partners.

Contents

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Introduction

In this chapter, we provide a brief background and an outline of the organization of the report.

BACKGROUND

The Department of Defense is at a crossroad in the evolution of its electronic commerce (EC) program. It makes sense for DoD to adopt a long-range policy of "one world – one EDI standard" [with that standard being United Nations Electronic Data Interchange for Administration, Commerce, and Transport (UN/EDIFACT)], but it must decide on the timing of its migration from the currently used Accredited Standards Committee (ASC) X12 standard to the use of UN/EDIFACT standards.

In its current electronic data interchange (EDI) applications, DoD uses standards developed by ASC X12 of the American National Standards Institute (ANSI). Those standards are used mostly in the United States and by most of DoD's EDI-capable trading partners.

In the past several years, the EDI community has seen the emergence and rapid expansion of international standards developed under the auspices of the United Nations and known as the UN/EDIFACT standards. They are used worldwide, predominantly in Europe.

The DoD has supported a single-standard concept and now wants to know the state of its readiness to migrate from the currently used ASC X12 EDI standards to the use of UN/EDIFACT standards. To help DoD answer the question "Is DoD ready to use EDI under UN/EDIFACT standards?", the report examines several issues:

◆ Readiness of DoD to perform UN/EDIFACT, considering the following:

    ► Trading partners

    ► Systems

    ► Support infrastructures

◆ The workload involved if DoD migrates to the use of UN/EDIFACT

◆ The differences between ANSI ASC X12 and UN/EDIFACT standards.

REPORT ORGANIZATION

In Chapter 2, we summarize DoD's readiness to migrate to UN/EDIFACT. We also assess the workload involved.

Chapter 3 provides a comparison of ASC X12 and UN/EDIFACT standards, including their organizations, their procedures for preparing standards, and their structures. The chapter has a corollary in Appendix A, which covers standards-making organizations and procedures in greater detail. A second corollary to this chapter is Appendix B, which covers structural and other major differences between the ASC X12 and UN/EDIFACT standards.

In Chapter 4, we present our recommendations and provide a strategic direction for DoD in its migration to the next phase of its EC program.

Appendix C is a listing of UN/EDIFACT messages by status category and ASC X12 transaction sets. Appendix D is a compilation of EDI-related terms and a glossary.

CHAPTER 2

DoD Readiness to Migrate to UN/EDIFACT

This chapter examines DoD's readiness to migrate to UN/EDIFACT. It also presents an assessment of the estimated workload involved in a migration to UN/EDIFACT.

WHY CONSIDER UN/EDIFACT STANDARDS?

In 1991 a study by The RAND Corporation recommended that DoD "... should do nothing to preclude the use of EDIFACT messages by DoD vendors and should support the development and improvement of those standards."[1] We believe the RAND study articulated the correct course of action for DoD to follow.

Many EDI users we spoke with, particularly those who do business both in the United States and abroad, agreed that a single EDI standard would be preferred. Other EDI users supported the idea of a single EDI standard because they would only have to acquire and maintain one type of translation software.

Our research revealed an ever-increasing trend toward the use of UN/EDIFACT standards primarily outside the United States, although we also saw increased UN/EDIFACT activity in this country as well. That trend suggests UN/EDIFACT will likely become the single worldwide EDI standard.

In March 1992, the Chairman of ASC X12, was asked by the ANSI Information Systems Standards Board (ISSB) to provide information on the U.S. role in EDIFACT development and maintenance. The ASC X12 Steering Committee felt that a ballot would be the most expedient way for the membership to answer the ISSB. It asked the ASC X12 membership to vote on the following:

> *I approve that X12 adopt a single EDI Standard, which is EDIFACT, after the release of Version 4 of the X12 American National Standard which is expected in 1997.*

The ballot was a policy ballot intended to set strategic direction on whether or not to pursue a single EDI standard. Table 2-1 shows the results of that ballot. A disapproval vote would have signaled that the ASC X12 membership wanted to continue dual ASC X12 and EDIFACT standards development and maintenance.

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[1] The RAND Corporation Report, *A Change of Course — The Importance to DoD of International Standards for Electronic Commerce*, Judith E. Payne, 1991.

Table 2-1.
ASC X12 Ballot Results — Adopting EDIFACT as a
Single EDI Standard

Action	Number
Ballots mailed	626
Ballots returned	279
Percent ballots returned	45%
Votes approving	213
Votes disapproving	66
Percent returned ballots approving	76%

Note: Data from ASC X12 S/92-775 memorandum dated November 16, 1992.

As approved, the current ASC X12 policy is to adopt a single EDI standard — EDIFACT — after Release 3070 (ANSI Version 4). Following that release, all *new* development in ASC X12 would be in EDIFACT syntax, using the EDIFACT data dictionary.

Regardless of the outcome of the vote, some members of the EDI community believe that ASC X12 standards should continue to be developed, or at least must be available and maintained indefinitely to meet business needs. DoD must recognize that not all EDI-capable businesses see a need to migrate to UN/EDIFACT standards. Those businesses are content to use ASC X12 EDI standards and will likely continue to do so, as long as they are available and maintainable. Some of those businesses are current and potential DoD EDI trading partners.

The ASC X12 members who voted for adopting EDIFACT must keep in mind that accession to a policy is easy compared with developing the plan and establishing milestones for its implementation. At present, ASC X12 has chartered a Task Group (Alignment) to develop the guidelines, strategy, and implementation plan necessary to put the results of the vote into action. The planning effort is under way, and the current sense of the membership will be known around June 1994.

A most difficult course lies ahead. Merely planning how ASC X12 will function in the future is not enough. Really at stake are the business interests of the ASC X12 membership. Some members will probably seek an accommodation to allow ASC X12 users who see no immediate reason to use EDIFACT standards to continue using ASC X12 standards (and perhaps to continue their development as well) either for some period of time, or indefinitely. That probability is very important for DoD because some of those users are current and potential DoD EDI trading partners.

The primary reason to migrate to EDIFACT is to meet business needs. For that reason, while it is vitally important how ASC X12 and DoD move ahead, it is

equally important that they move forward from a base of commitment. ASC X12 has to convince parties representing an installed base that their business interests will be served. If ASC X12 cannot make those assurances, the U.S. standards-setting process will face substantial turmoil over the next several years.

Insofar as DoD is concerned, we believe that its business interest will be served over the long term if the world adopts one EDI standard. However, DoD will have to expend time and effort before it and its trading partners can realize the benefits of a single standard.

For its part, DoD will have to be aware of the market forces that affect decisions to migrate to UN/EDIFACT and plan its migration in harmony with those forces. DoD must participate in the ASC X12 alignment planning effort to ensure its views are made known and to maintain currency with contemporary ASC X12 planning and migration efforts. We believe that by participating actively in the alignment effort, DoD will gain invaluable insights into, and help formulate, a UN/EDIFACT migration strategy.

Current ASC X12 draft plans for alignment with UN/EDIFACT call for no new development in ASC X12 syntax after Release 3070 (ANSI Version 4). This means that all DoD ASC X12 EDI requirements should be identified and started through the ASC X12 standards development process no later than June 1995 to ensure their inclusion in Release 3070. At the same time, DoD must ensure that UN/EDIFACT syntax contains needed business functionality so that a "bridge" exists and DoD can trade freely in both syntaxes.

READINESS TO MIGRATE TO UN/EDIFACT

In this report, we look at trading partners, systems, support infrastructure, and workload. Following our examination of those four areas, we analyze the data gathered and draw conclusions about where DoD is on a continuum described as *"ready to migrate"* to UN/EDIFACT. At the end of this chapter we present our conclusions on that readiness in tabular form.

Trading Partners

ASC X12-Capable Trading Partners

About 30,000 business entities in the United States are reputed to be capable of trading using one or more ASC X12 transaction sets. We could find little data on the number of businesses using EDI let alone how many of those users might be current or potential DoD suppliers and/or trading partners.

In our dealing with the ASC X12 community, we know of some DoD suppliers that are ASC X12 EDI-capable. We believe that base of suppliers is

sufficiently large to support near-term goals of getting started and gaining experience.

To date, DoD has done all its EDI work using ASC X12 standards. New transaction sets have been developed for DoD business applications, and changes have been made to existing ASC X12 standards. Therefore, as DoD migrates to EDI, it will be able to draw on a wide range of ASC X12 standards already capable of carrying DoD data.

To illustrate, the Defense Finance and Accounting Service — Columbus Center (DFAS-CO), has added appropriate business functionality to ASC X12 standards that allows vendors to use the ASC X12 Invoice (810) transaction set to submit commercial invoices electronically to DFAS-CO.

In another example, the Defense Logistics Management Systems Office (DLMSO) developed a new ASC X12 transaction set (511) that can be used to submit requisitions electronically in EDI format. That new transaction set was designed for use within DoD and can also be used by DoD contractors authorized to requisition items from the DoD supply system. Because it is a public standard, the DoD-developed 511 transaction set can also be used within the private sector to the extent that it contains business functionality adequate for that use.

UN/EDIFACT-Capable Trading Partners

As stated earlier, UN/EDIFACT is an EDI standard used predominantly outside the United States. We did not find authoritative data on the numbers of current UN/EDIFACT users, but we believe the number to be between 10,000 and 20,000 worldwide. The population using UN/EDIFACT standards is presently smaller than the population using ASC X12 standards, but the number of users grows daily. Some current UN/EDIFACT users are actual and potential DoD suppliers.

The issue of which standard to use does not preclude DoD's trading in both. If DoD subscribes to the notion of "one world— one EDI standard" and that standard is to be UN/EDIFACT, the goal is charted. All that remains is the question of timing, and how long should DoD support both standards under the assumption that DoD cannot stop trading in ASC X12 syntax and abruptly switch to the exclusive use of UN/EDIFACT.

The DoD — and for that matter, the Federal government — spends many millions of dollars abroad. Since UN/EDIFACT is the EDI standard of choice in virtually all other places that DoD might trade heavily, it makes sense to pursue such a trading capability for that reason alone. When standardization, harmonization, and interoperability issues are factored into the equation, they make a compelling argument for migration.

Figure 2-1 illustrates our contention that while more potential DoD EDI trading partners in the world now use ASC X12 EDI standards than UN/EDIFACT standards, the numbers using each standard will reverse over time. Data and time are not implied in this figure; the only implication is the concept of the shift in standards use over time.
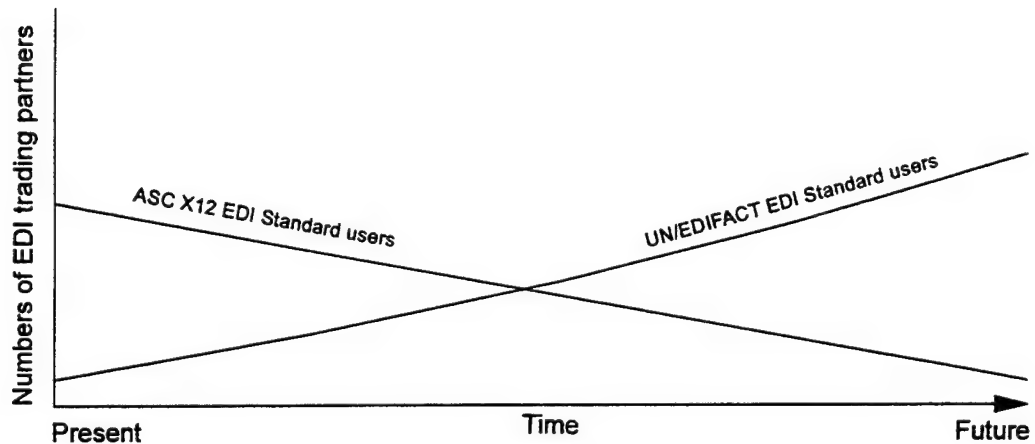
Figure 2-1.
Comparison of EDI Standards Used by Potential DoD Trading Partners

The key to ensuring that DoD will some day be ready to migrate to UN/EDIFACT rests on DoD's ability to make a sustained commitment of time and other resources to the UN/EDIFACT standards development process. That commitment is essential if any assurance is to be given that UN/EDIFACT standards will one day support DoD business functions. The immediacy of the commitment arises from the fact that those parties that set standards are assured that their business functions are considered in the process. Parties that come late to the process either accede to the existing standards or are faced with the often difficult and time-consuming challenge of trying to change them.

LIKELY MIGRATORS TO EDI

Likely migrators to EDI are most emphatic in their concern that they make only one major new investment in EDI. Many potential EDI users who could become DoD trading partners are waiting to see how DoD, other Federal government, private-sector business associates, and ASC X12 policy evolve before they commit to EDI. Once the policy is clear, we believe that the population of likely migrators will quickly make their investments in EDI.

Small businesses should not be required to support first one and then another EDI standard. We believe a more prudent course of action will be for DoD to commit to using UN/EDIFACT standards, but let the market-place determine the EDI standard of choice for any given trading partner. In that scenario, DoD must be prepared to support both standards for a period of time. That course is

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not particularly challenging either in terms of technology or the resources required. A more detailed discussion of it is presented later in this chapter.

WHAT EDI CAPABILITIES SHOULD TRADING PARTNERS HAVE?

Some DoD suppliers have developed applications for their private-sector businesses, and those applications can be adapted to trading with DoD. Others have applications that bear little resemblance to the type of data DoD requires to complete an effective EDI exchange.

As an example, if DoD is capable of issuing a purchase order, a DoD trading partner taking full advantage of EDI should have an order-entry system. If the trading partner cannot accept a DoD EDI order without reducing it to paper, DoD will be EDI-capable but the trading partner will not. However, that situation does not necessarily mean that DoD cannot trade with a business unless it is EDI-capable. Successful trading from DoD's perspective also depends on three other important factors.

First, DoD must accept the premise that its applications and translation software must be able to deliver standard EDI data to a telecommunications system accessible to its trading partners.

Second, EDI-capable trading partners will need at least an electronic address to receive DoD business data.

Third, if DoD trading partners choose not to be EDI-capable, they will have to acquire the capability to receive DoD data in some other manner. Typically, value-added networks (VANs) have offered such services to businesses that do not wish to use EDI. A likely scenario in that situation would have DoD transmitting a business transaction in EDI format and routing it to an electronic address at a trading partner's VAN. When DoD data arrive, the VAN translates them and puts them into a format chosen by the customer.

Such a scenario should be adequate for DoD since it cannot control the business decisions of its potential trading partners.

In the long term, DoD should not use EDI with some suppliers to satisfy internal requirements, and at the same time continue to support the same business functions in a paper-based format. To use both mediums would be inefficient because maintaining two systems will consume all potential savings and other benefits and prove to be more costly in the long run. DoD should quickly convert appropriate paper-based systems to the use of EDI whenever it is determined to be feasible and practical to do so.

The DoD should consider satisfying both its ASC X12-capable and its UN/EDIFACT-capable trading partners at the same time. Such a course of action is possible for little additional investment in translation and table-driven software, as shown in Figure 2-2. If DoD develops such a capability, it could use either standard depending on which was used by its trading partner. It would become a simple matter of looking up the trading partner's capabilities in a data base and then formatting an EDI transmission accordingly.
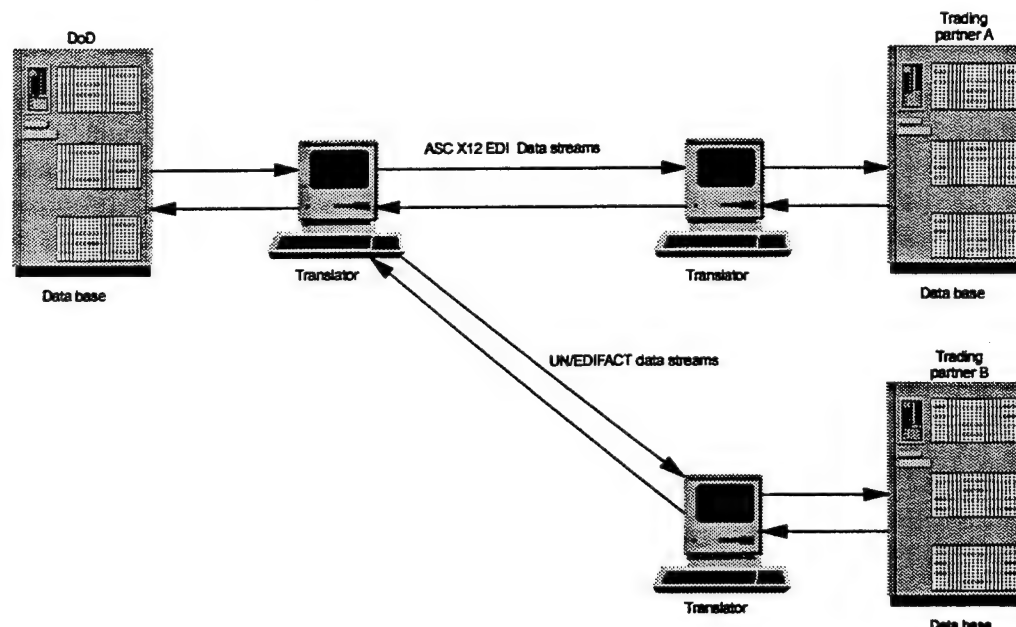
Note: This figure is representative of one or more translators using ASC X12 and UN/EDIFACT software and having a capability to look up in tables the needs of a specific trading partner. The operation is bidirectional.

Figure 2-2.
Exchanging EDI with Both ASC X12- and UN/EDIFACT-Capable Trading Partners

Our recent work in the area of international logistics harmonization suggests that while European companies would like DoD to use UN/EDIFACT immediately, they may be willing to take a more gradual approach as long as some UN/EDIFACT work is begun in the near term. We support such a course of action and recommend that DoD and its allies select one or more pilot projects on which the use of UN/EDIFACT syntax and international harmonization issues can be tested.

SUMMARY

Will DoD support both standards? If so, for how long? If we assume that DoD will continue to trade primarily with U.S.-based trading partners, then it is

likely those data exchanges will take place for some time in ASC X12 EDI standards. The shift from ASC X12 standards will occur only when some circumstance causes trading partners to migrate to UN/EDIFACT standards. We believe that the number of UN/EDIFACT users in the world will grow substantially and that growth will be dependent upon the tests of feasibility and practicality, influenced by four primary factors:

- EDI use will become more popular.

- The world will move toward a global economy.

- Users of ASC X12 standards will migrate toward UN/EDIFACT standards.

- DoD will support international standardization and harmonization initiatives with its allies.

CONCLUSION

We conclude that the population of actual and potential trading partners with whom DoD will exchange data in EDI format is not now capable of supporting DoD requirements using either ASC X12 or UN/EDIFACT standards. For that reason we believe that a dual capability will afford DoD its greatest opportunity to trade using EDI. However, as DoD and its trading partners move to a single EDI standard over time, the overlap will diminish as shown in Figure 2-3.
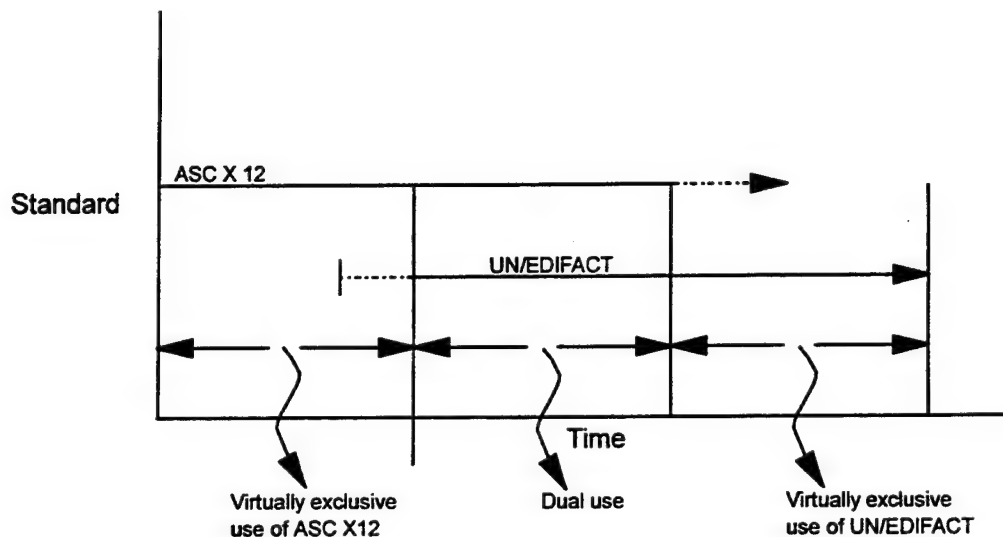
Figure 2-3.
Use of EDI Standards During the Migration to UN/EDIFACT

We believe that DoD should continue its present course of supporting EDI using ASC X12 standards. At the same time, we believe that DoD should

continue to work toward adopting a policy of "one world — one EDI standard" with that one standard being UN/EDIFACT.

Systems

The former Office of the Executive Agent (EA) for EDI at the Defense Logistics Agency (DLA) defined DoD EDI systems. We found that the architecture described by the EA and later articulated by the acquisition reform process action team are being put in place. The rest of the EDI system is in the process of being further defined, acquired, installed, or implemented.

The issue of which standards are used is of little concern in terms of EDI system hardware and telecommunications. A system that is properly constructed and sized should be capable of handling data regardless of the syntax used. The issue impacting architecture is one of supporting a single standard versus a dual standard. We encourage DoD to ensure that its EDI system architecture can support a dual capability until the migration to a single standard is complete.

SYSTEM COMPONENTS

In considering systems and the related investment associated with EDI, we must separately consider the following components:

- ◆ Architecture

- ◆ Hardware

- ◆ Telecommunications interconnectivity

- ◆ Application programs

- ◆ Translation software.

Architecture

The DoD's examination of various system architectures resulted in the definition of initial and notional target system architecture. We note the baseline, as outlined by the acquisition reform process action team, and believe it is adequate to support the EC program for some time to come as long as

- ◆ it is properly sized and

- ◆ it conforms to the emerging concept of the virtual network being articulated as the Federal EDI architecture by the Federal government.

Although DoD has already made an investment in its EDI system architecture, some additional investment will be required before it will have an end-to-end system capable of supporting its EDI needs. The process action team in its report used a figure of $26 million. We see no reason to challenge that figure.

The DoD started using an EDI system several years ago. At that time, it focused on the use of ASC X12 standards. EDI system architecture is, for the most part, standards-neutral; that is, with limited exceptions, a properly designed system should be capable of supporting the EDI syntax of choice. We believe that DoD system designers understand and will implement this concept.

Caution must be applied to those places in the target architecture that could be perceived to be bottlenecks to the flow of data or could actually be such. Any time information has to flow through one point, that point has a potential to impede the flow of data. DoD business operations are often time-sensitive, with the procurement process being a prime example. Wartime and readiness issues add yet another dimension of time criticality. Thus, every effort must be made to ameliorate the potential for data flow disruption. That can be accomplished in several ways:

◆ Ensure that from the outset, internal and external telecommunications systems are adequately sized for current and anticipated traffic volume

◆ Ensure redundancy and alternative routing capabilities

◆ Develop a system operating procedure and execute it through a centrally managed organizational structure.

The system architecture must be made available on a time-phased, critical-path, milestone schedule consistent with other EC goals. Furthermore, DoD must ensure that from the outset its EC system architecture is properly sized and adequately budgeted and that time-phased system procurements are undertaken so that components are in place when needed. That need should be defined as a curve, and the curve should be in harmony with Service and agency plans for migration to EDI.

Hardware

The DoD has a computer-literate work force and a robust inventory of personal computers already on hand. For that reason, we believe that it has acquired much of the low-end hardware needed to develop its EC system.

Some hardware investment will be required on the high end to support the system architecture and eventual rational data bases, but we believe that such investment can be accommodated with careful planning, even in times of austere budget constraints. The investment must be made regardless of the EDI standard or standards adopted.

Telecommunications interconnectivity is one of the key ingredients in an EDI system. As the number of DoD trading partners grows, demands placed on internal and external telecommunications systems will increase.

The issue of telecommunications interconnectivity has been addressed by DoD. Current DoD planning suggests the use of existing networks with the addition of one or more access points to be used as points of connectivity between the internal and external systems. The Defense Automatic Addressing System Office (DAASO) or an office providing similar functionality will likely play a key role in establishing telecommunications interconnectivity.

The DoD will rely heavily on one or more hubs (or network entry points) and VANs to achieve needed external telecommunications interconnectivity. While some trading partners should be allowed to connect directly to distribution points where it is feasible and practical to do so, the bulk of the telecommunications interconnectivity will be through mutually supporting VANs. This concept is in keeping with the private-sector way of interconnecting EDI trading partners.

Value-added networks provide the private sector with EDI telecommunications interconnectivity, mailboxes, message translation services, and other functions associated with other than point-to-point EDI systems. DoD has experience in dealing with and using commercial VAN services from its ongoing EDI projects.

Currently, DoD is working on a universal VAN agreement that would likely expand its current ability to communicate with its EDI trading partners. DoD should test and certify all VANs it intends to use as a part of its EDI architecture and telecommunications interconnectivity plan.

Application Programs

Information system architects generally know that EDI is an application-program-to-application-program system regardless of which standard is used.

Thus, the critical path for any EDI migration strategy must include the development of application programs. If EDI is selected as a technology to move data, it should be selected because it facilitates the use of data by disparate but complementary application programs. For example, a willing trading partner (i.e., one who intends to take advantage of trading with DoD) might want to have an EDI order-entry system to complement (and receive) orders from a DoD EDI order-placement system.

When we asked whether DoD has application programs for its EC system, we found that in some cases application programs exist and in other cases, they are either under development or their development is contemplated.

Development of application programs will take a great deal of the time and resources available for EDI migration.

Application program development will draw on EDI resources, and those costs must be considered in any budgetary planning. We also believe that application programming is a key milestone on the critical path.

The DoD must ensure that in spending EDI resources, it gives highest priority to conversion or development of only those systems that contribute to the overall DoD EC strategy. To ensure those priorities, DoD must ensure that application programs are developed only to support a well-defined EC strategy. It can do so by fund control, detailed implementation milestone planning and scheduling, and periodic progress review.

For example, if DoD develops the ability to send out electronic requests for quotations (RFQs) in EDI format, it will have a suboptimal system unless it can also receive and process EDI-formatted responses to those RFQs electronically. When an award is to be made, DoD must also be able to format an EDI purchase order and transmit it to a trading partner who hopefully will have an order-entry system. In turn, that order-entry system will use data already on hand to generate shipment notices and invoices to DoD, and so on.

To the extent that DoD EDI trading partners have corollary application programs, they will be able to optimize the value of migrating to EDI. If they do not have corollary EDI application programs, they will have to acquire them or contract for a third party (i.e., a VAN) to provide the service. Failure to have those corollary applications will slow down the accession of EDI trading partners.

While the availability of trading partner application programs must be considered, DoD should be resolute in its efforts to migrate to a system of EC. Under no circumstances should DoD be willing to compromise on its EC goal by providing both an EDI and a paper-based capability. It is essential to move toward full EC, and that goal can only be through the full migration of applicable business exchanges.

In summary, while we saw some work being done to create application programs for use in the DoD EC system, much additional work remains.

Translation Software

Translation software for UN/EDIFACT is readily available in the commercial market. It is updated regularly (typically in time to coincide with the publication of an updated version/release of UN/EDIFACT standards). Whether the translatable UN/EDIFACT messages can support DoD business functionality is a different issue.

From an examination of a recent compilation of EDI software vendors and products, we conclude that most U.S. translation software vendors have focused

on products to support ASC X12 transaction sets since that EDI syntax is in common use in the United States (notwithstanding current trends by large multinational businesses to also use UN/EDIFACT). Many of those vendors also market products that support UN/EDIFACT. While the UN/EDIFACT translation software market in the United States is not yet as robust as the ASC X12 translation software market, we predict it will become more robust as businesses shift to UN/EDIFACT. Foreign sources of UN/EDIFACT translation software exist in adequate numbers.

Some cost will be associated with the acquisition of UN/EDIFACT translation software. However, that cost will be minimal in comparison to the cost of making the other parts of the DoD EDI system operational.

Support Infrastructure

We believe that some difficult issues in the support infrastructure area remain to be resolved as DoD evaluates its readiness to use UN/EDIFACT.

The international aspects of defense, the need for standardization and harmony, and the increasing reality of a global economy signal the need to achieve a more common basis for data interchange. UN/EDIFACT holds the greatest potential for achieving that end with respect to the exchanges of routine business information. However, in using UN/EDIFACT, DoD will have to deal with many support infrastructure issues and also look for improvements in the whole process of UN/EDIFACT standards development.

UN/EDIFACT

Business Functionality

The DoD must ensure that its business functions can be supported by UN/EDIFACT standards. Table B-16 and Appendix C elaborate in a macro way, on how much of DoD's broad business functionality can be presently supported by UN/EDIFACT syntax messages. However, until a detailed study is performed to determine what data can be carried in those messages, DoD will not know how well current and developmental UN/EDIFACT standards can support its business requirements and how many changes to those standards will have to be made.

Efficiency

Over the past year, we have seen some improvement in the standards-making process. We believe that as more people become involved and the process matures, it will become more efficient. Nevertheless, moving requirements through the UN/EDIFACT standards approval process, as with any similar process, can be time-consuming.

The DoD can improve efficiency in the standards-making process by *participation*. If DoD commits the resources needed to participate in the standards-making process, it will ensure that it has optimized its potential for moving its requirements through a process that is, and will remain somewhat cumbersome.

Availability of UN/EDIFACT Messages

The availability of standards may be compared in two ways:

◆ Numbers of standards at different stages of development

◆ Business functionality of existing standards.

Merely comparing numbers of developed standards is not sufficient by itself as a credible discriminating factor in selecting which standard to use. More ASC X12 transaction sets have been developed partially because ASC X12 began developing transaction sets sooner and also because it included many industry-specific transaction sets in standards. A more accurate measure of standard usability can be obtained only when a detailed comparison of the included business functionality of each standard is made. Several factors lead us to believe that ASC X12 currently has greater utility to DoD.

◆ ASC X12 standards encompass a wider range of transactions useful to DoD.

◆ DoD is participating in the ASC X12 standards development process, thus ensuring DoD business functionality is included in selected ASC X12 transaction sets.

Notwithstanding, we expect that over the next several years UN/EDIFACT message capabilities will equal those of ASC X12. Dedicated support to the UN/EDIFACT standards development process will enable it to catch up to ASC X12 even sooner.

Binary, or Transparent, Data

Fundamental to the ASC X12 standard design is the precept that business information is to be transmitted within the body of a transaction set and data transmitted must be independent of the means of telecommunication. Great care has been exercised over time to ensure that all new development adhered to that precept. ASC X12 and UN/EDIFACT differ on the placement of transparent data in the respective standards.

We do not intend to revisit the differing solutions suggested for moving transparent data in an EDI context. Although both ASC X12 and UN/EDIFACT offer solutions, the solutions are not entirely interchangeable.

We are aware of recent proposals to treat transparent data in UN/EDIFACT, including carrying it in the enveloping structure of a message. That proposal appears to be gaining in popularity. We commend it and other initiatives to resolve this issue. Since DoD will need to transmit large amounts of transparent data primarily associated with its acquisition process, it has a stake in how the issue gets resolved and thus should become involved in the issue resolution process.

REGISTRATION OF TRADING PARTNERS

Proper use of EDI systems involves more than merely the decision to trade; trading partners must know a lot about each other to facilitate effective trading. To achieve that end, DoD should take the following actions to ensure the successful registration of trading partners:

- Develop a set of EDI system operating procedures and make them available electronically to potential trading partners.

- Centrally manage the registration process so that a vendor need only register once, regardless of who the DoD trading partner will be. This central registration should eventually migrate to a Federal registry.

- Determine what information is needed to establish a trading partner relationship.

- Require potential trading partners to register and periodically update their files electronically.

- Use the ASC X12 Transaction Set 838, *Trading Partner Profile*, or a UN/EDIFACT-equivalent message when available.

- Develop a registration data base that will distribute data to other systems.

TRADING PARTNER AGREEMENTS

Trading partner agreements (TPAs) are used to specify the terms and conditions applicable to EDI trading between parties. DoD has used TPAs in the past and is continuing its development of a single TPA that can be used by all DoD activities.

Establishment of Trading Partner Agreements

A general practice of the EDI user community is to establish agreements between trading partners. Those agreements are necessary to ensure that both parties to the trade are made aware of the following essential information:

- Rights and responsibilities

- Technical and administrative information necessary to effect a trade.

We recommend DoD use a centrally managed registration system encompassing the electronic registration of trading partners. Such a system could be used for a variety of purposes:

- It could eliminate paper-based registration with its attendant storage and maintenance requirements.

- It could require trading partners to maintain currency of data.

- It could eliminate the need for decentralized systems and repetitive registrations.

We believe that the ASC X12 Transaction Set 838, and eventually an equivalent message in UN/EDIFACT, should be used for electronic trading partner registration. DoD worked out the concept of electronic registration of trading partners as part of the Air Force's government acquisition through electronic commerce (GATEC) project at Wright-Patterson Air Force Base. Implementation conventions (ICs) for registration and confirmation of registration were produced and delivered to the GATEC project as draft DoD ICs. Those ICs and a more robust one done for the Federal government are available for review and eventual use. DoD will eventually have to migrate its registration business functionality to UN/EDIFACT if it intends to have electronic registration of its UN/EDIFACT-capable potential trading partners.

CONFIGURATION CONTROL OF THE EDI ENVIRONMENT

Many aspects of configuration control have to be worked out before trading can take place in an optimal environment. Among them are the following:

- determination of the standard used,

- selection of the business functionality,

- version/release of the standard, and

- implementation conventions linked to the selected version/release of the standard.

Which Standard to Use

In the near term, DoD should exchange with trading partners using ASC X12 standards and should immediately begin to acquire the capability to use UN/EDIFACT standards. Once it has acquired that capability, DoD should

afford trading partners the option of trading using one or the other standard. Eventually, driven by market forces, DoD should migrate to an EDI system using only UN/EDIFACT standards.

Version/Release of Standards

Both ASC X12 and UN/EDIFACT standards-making bodies periodically issue versions/releases of their standards. Those versions/releases pose a potential problem when trading partners who are using the same type of standard are using different versions/releases. The problem occurs only when changes have been made from one version/release to the next. In that case, trading partners may not be able to trade without making changes to translators, applications, or both.

Another problem arises when one trading partner wishes to exchange a different set of transactions (or messages) than does the other partner. For example, take the case in which one trading partner wishes only to receive orders even though the DoD EC process is based on solicitation (RFQ), quote, and order transaction sets. That trading partner has no capability to receive or respond to RFQs and must acquire it.

Configuration Control of Implementation Conventions

An IC is a recording of the manner in which trading partners agree to use a specific transaction set. Since any two trading partners are unlikely to use the full potential of a transaction set, they typically agree on how a transaction set will be used. That agreement is often formally recorded in an IC.

Because DoD Services and agencies launched a wide range of internal EDI initiatives, DoD presently lacks configuration control over ICs being used by the Services and DLA. This critical issue must be resolved as soon as possible.

Some trading partners will already be using EDI when DoD signals that it, too, is ready to begin trading. In those cases it is likely that some trading partners will want DoD to trade in accordance with the way they are already conducting similar trades because many of those traders are part of large industry groups that have already hammered out the agreements among themselves on how certain transaction sets will be traded.

Those potential trading partners will be willing to trade with DoD; but, if DoD deviates substantially from the way they are now trading, they will have to expend resources to deal with the problem. We can reasonably presume that many of those potential traders will balk at the idea and bring pressure to bear on DoD to accommodate their way of trading.

Control of ICs leads to the question of whether DoD should be willing to accommodate all or some of its trading partners or whether it should develop a

single convention and trade only with partners willing to adapt to that convention. Those questions need further study.

Figure 2-4 illustrates the problem DoD could face when trying to trade with a disparate population of vendors who use different types and versions/releases of standards, who have different trading capabilities, and who use different implementation conventions. The resolution of that problem is difficult, but the problem must be faced if DoD intends to appeal to a wide group of potential trading partners.
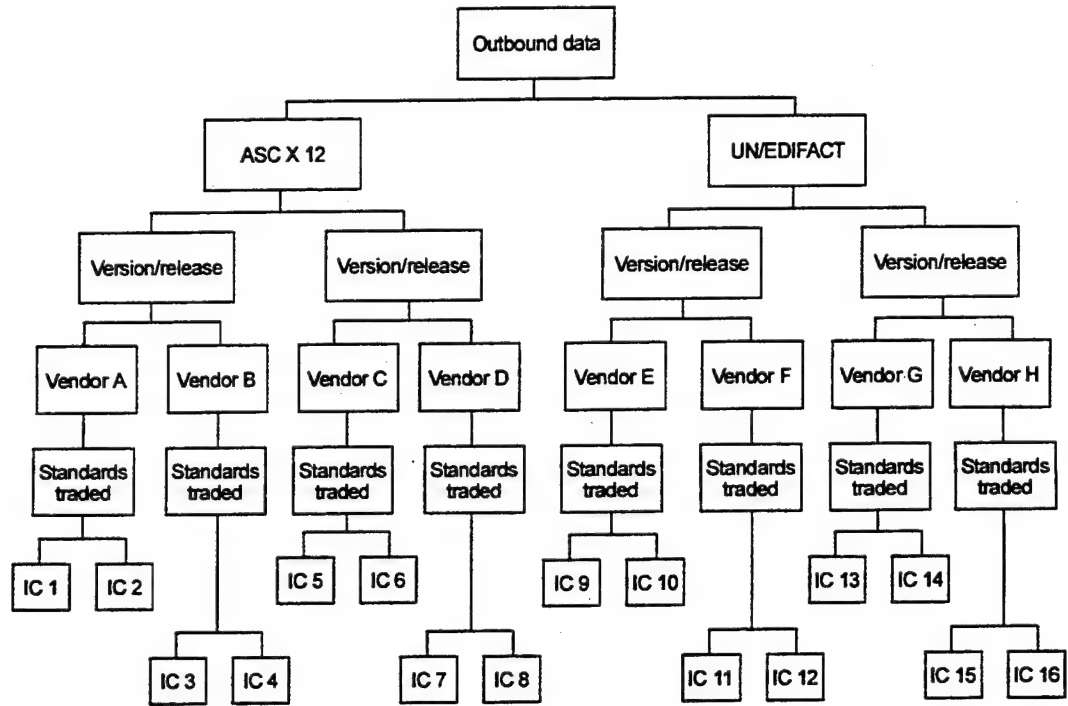
Figure 2-4.
Using EDI with a Disparate Population of Trading Partners

Current EDI standards are used by different groups of trading partners in different ways. For example, while some of the data are the same in both types of orders, the data needed in an order for spare parts likely differs from the data needed in an order for clothing. Notwithstanding the data disparity, both ordering parties can use the same standard (i.e., the ASC X12 Transaction Set 850, *Purchase Order*, or the UN/EDIFACT ORDERS message). The differences can be documented in an IC and software employed to process both order types.

While DoD has some draft ICs for ASC X12 transaction sets, none yet exist in DoD for UN/EDIFACT messages. DoD must ensure that messages exist in UN/EDIFACT syntax, it must determine the extent to which its business functionality can be transmitted in UN/EDIFACT, and then it must develop, coordinate, publish, and maintain configuration control over UN/EDIFACT-based ICs.

It is imperative for DoD to participate in efforts to develop government-wide implementation conventions for use by all departments and agencies of the government. Further, any DoD IC efforts on standards or ICs should be coordinated and consistent with government-wide efforts.

THE ISSUE OF VERSION/RELEASE CONTROL

If vendors are allowed to trade with DoD in either ASC X12 or UN/EDIFACT syntax, it will multiply the problems associated with maintaining version and release control of standards between trading partners. Resolution of the problem can only be achieved when DoD addresses these issues:

♦ Differences in data dictionaries

♦ Multiple versions and releases of both ASC X12 and UN/EDIFACT standards

♦ Installed base already using different versions and releases of both standards

♦ Use of DoD- or Federal- or industry-specific implementation conventions

♦ Policy on the development of implementation conventions.

While it is true today the ASC X12 and UN/EDIFACT data dictionaries have some differences, we believe that they will be ameliorated over time as ASC X12 aligns itself with UN/EDIFACT. This means that we need to determine where dictionary commonalty is necessary.

The DoD and eventually the Federal government must develop a policy of EDI version and release control. A policy of supporting the current version and back two versions has been mentioned as a likely candidate. While still causing some configuration control problems, such a policy would appeal to a wider base of trading partners.

It seems to us that DoD and eventually the Federal government should settle on a version and release and use it for as long a period of time as possible.

One way to deal with the installed base issue is to work with ASC X12 to develop a set of guidelines and tutorials for selected transaction sets. In that way, DoD will get the private sector involved in the process of determining how standards are to be used. The result would be implementation conventions developed with wider input and conventions that ought to be more palatable to a wider range of potential trading partners.

The DoD will also have to rethink the timing of its EDI initiatives. The President's desire to have some EDI up and running by September 1994 needs to

be factored into other planning milestones to ensure that all EDI initiatives are working from a common set of implementation plans and schedules.

Finally, DoD needs to ensure that its data requirements are articulated in Federal implementation conventions. Separate conventions would no longer be needed for the commonly used transaction sets as long as the conventions were built at the Federal level to a greatest common denominator of the data requirement. Department-specific conventions should only be used when the use of the transaction set is unique to the department. Other than that one situation, all DoD conventions should migrate to Federal conventions.

SUPPORT FOR STANDARDS-MAKING BODIES

Members of standards-making bodies believe that attendance ensures their requirements will be met. The standards-making process is often quite accommodating to those who are present to articulate their business needs. On the other hand, those who allow others to develop the standards and hope to be able to use them run the risk that the results will not be acceptable.

The DoD must commit resources to support the standards-making process. That process is voluntary, and volunteers tend to support the process out of a need to protect their business interests. DoD should do likewise. It can optimize its presence by volunteering for the following:

- ASC X12 meetings. These meetings will be especially important when the business of ASC X12 shifts from the development of national standards in ASC X12 syntax to developing them in UN/EDIFACT syntax.

- Pan American EDIFACT Board (PAEB) meetings. These semiannual meetings are the first stop as UN/EDIFACT syntax-based messages migrate from the national body (ASC X12) into the international standards-setting arena.

- Joint Rapporteurs meetings. At these semiannual meetings, international EDI standards-making issues are resolved.

PRIORITY OF EDI MIGRATION

An LMI report examined areas of EDI opportunity in DoD[2]. The report concluded that procurement (including the finance function), transportation, supply, and maintenance afforded the greatest near-term EDI potential, with procurement possessing the greatest overall potential for using EDI. We believe the conclusion of that report remains valid today.

In that regard, DoD should focus initially on ensuring that procurement functions can be accommodated in UN/EDIFACT messages. Our limited

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[2]LMI Report DL001-06R1, *A Business Case for Electronic Commerce*, Thomas P. Hardcastle, Thomas W. Heard, et al., September 1990.

research in that area suggested that the major business functions associated with the procurement process have corollary messages in the UN/EDIFACT standards. Those messages should be the first ones to be assessed and used.

As a close second priority, standardization and harmony offer a great potential for using UN/EDIFACT. We suggest DoD focus its attention in that area as well. Emphasis should be given to an international effort to standardize logistics support.

Business functionally should always be considered in light of the concept of the extended enterprise that will lead to the integration of defense and private-sector logistics into a single relationship. EDI facilitates the concept of extended enterprise and thus, the more trading partners that DoD can acquire by trading in both ASC X12 and UN/EDIFACT syntaxes, the greater the expansion of the enterprise. That in turn will benefit readiness, standardization, harmonization, and interoperability in the public and private sector at home and abroad.

The DoD already knows which functional areas of opportunity afford the greatest return on its EDI investment. For the most part, those areas are part of the acquisition process to include finance. The functions of transportation, supply, maintenance, and material management also present opportunities for economy and efficiency. For that reason, any comparison of standards must take into account the types of business processes that will have to be accommodated and the priority that should be assigned to their migrating to EDI.

The DoD has launched EDI initiatives that suggest it intends to follow the priorities established in the business case previously cited[3], and refocused in Defense Management Report Decision (DMRD) 941 as modified.

Estimated Workload

Workload is not in and of itself dependent upon which EDI standard DoD uses. Generally, the same effort is needed to trade in ASC X12 as to trade in UN/EDIFACT. However, if DoD agrees to support both ASC X12 and UN/EDIFACT using trading partners, it will have to maintain two standards for a period of time. To do so, will result in some additional workload, which will likely be offset by the economies and efficiencies that result from exchanging data with a larger base of trading partners.

Before estimating the workload involved in migrating to UN/EDIFACT, we must determine the estimated workload involved in migrating to any form of EDI. For example, DoD cannot do any form of EDI without a system, application programs, telecommunications interconnectivity, configuration management and control, policy, priorities, etc. The investment cost of these items will change little regardless of which EDI standards are used or even if both are used simultaneously for a period of time.

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[3] Ibid.

Although we did not include cost analysis of the workload, we can make some cost predictions based on similar efforts in the ASC X12 environment. Our estimates of the workload involved in accomplishing tasks in those general areas is presented in Table 2-2. These data do not take into account the approximate $26 million identified in the acquisition reform process action team report.

We made no attempt to segregate relative costs for adopting ASC X12 versus UN/EDIFACT, when we believed the cost to be the same regardless of which standard was adopted. We did isolate specific costs associated with the migration to UN/EDIFACT that can be attributed exclusively to that effort. Those costs fell into seven general areas as outlined in Table 2-2.

Table 2-2.
Estimated Workload Involved
in Migrating to UN/EDIFACT

Task	Cost/workload
Business functionality	1 labor year
Translation software[a]	$250,000 (initial investment)
Translation programming support	1 labor year[b]
Standards-making process	1/2 labor year/year
Project support	1/2 labor year/year
Implementation convention development	3 labor years
Application programming support	2 labor years[c,d]

Note: Direct estimates for cost or effort not otherwise associated with migrating to EDI.

[a] To support a DoD concept of shared translation service as opposed to translation at data origination locations.

[b] Initial requirement. After some UN/EDIFACT implementation, this number will be reduced to 1/2 labor year for awhile and then to a maintenance level.

[c] Associated with UN/EDIFACT-based applications.

[d] We are also aware of cost projections in the neighborhood of $26 million contained in a report on DoD acquisition reform. Those costs are syntax-neutral and would have to be expended regardless of which standard is selected.

CONCLUSION

Table 2-3 describes DoD readiness to migrate to UN/EDIFACT in terms of colors. Green indicates the category is ready now, amber indicates some movement toward readiness, and red indicates little or no current readiness. No category was rated green.

Table 2-3.
DoD Readiness to Migrate to UN/EDIFACT

Category	Readiness
Policy	Red
Trading partners	Amber
Systems	Amber
Architecture	Amber
Hardware	Amber
Telecommunications interconnectivity	Amber
Applications programming	Amber
Translation software	Red
Support infrastructures	Amber
Business functionality	Amber
Efficiency	Amber
Availability of messages	Amber
Ability to pass transparent data	Amber
Electronic registration of trading partners	Red
Trading partner agreement	Amber
Trading partner capabilities	Amber
Configuration control of standards	Red
Configuration control of implementation conventions	Red
Changes to law, rule, and regulation	Amber
Support for standards-making bodies	Amber
Security and electronic signatures	Amber
Priorities	Amber
Budget	Amber

Note: Green = ready; amber = some readiness; red = little or no current readiness.

Comparison of ASC X12 and UN/EDIFACT

This chapter provides a comparison of ASC X12 and UN/EDIFACT standards, including the standards-making organizations, standards-making procedures, and structural differences. Appendix A describes standards organizations and procedures in greater detail, and Appendix B covers selected structural and other differences between the ASC X12 and UN/EDIFACT standards.

Organizations

Accredited Standards Committee X12

The ASC X12 has a formal organizational structure designed to facilitate the consensus-building process leading to the development and publication of draft standards for trial use (DSTUs) and subsequently ANSI EDI standards.

Most development work on ASC X12 standards is done at the subcommittee level, and most subcommittees are functionally oriented (e.g., Purchasing and Material Management), with one notable exception, the Government Subcommittee. That subcommittee is chartered to develop standards when one or both parties exchanging information are government entities.

Not all development work meeting the one-or-both-party test is done in the Government Subcommittee. Often, because of the functions involved in the work (i.e., changes to an existing transaction set that was designed by another subcommittee), a standard affecting the government is assigned to the subcommittee that developed the transaction set. DoD has worked closely with a number of ASC X12 subcommittees and continues to do so in an effort to ensure its business functionality is included in ASC X12 standards.

The Government Subcommittee has completed a substantial amount of standards development work for DoD as well as other Federal agencies (e.g., U.S. Customs Services, Federal Communications Commission, etc.).

The ASC X12 organization tends to be reasonably stable. A summary of the current ASC X12 organizational structure is shown in Appendix A.

A private company, Data Interchange Standards Association, Inc., serves as the ASC X12 Secretariat.

UN/EDIFACT

A formal organizational structure has been designed to facilitate the consensus-building process leading to the development and publication of UN/EDIFACT standards. Development work on UN/EDIFACT standards in the United States typically starts at the ASC X12 subcommittee. In the case of DoD, the Government Subcommittee would be responsible for the work in most cases. In other cases, the Government Subcommittee would likely defer to another subcommittee when the development work was initially done by that subcommittee or the business functionality was clearly within that subcommittee's area of expertise and responsibility. For example, if DoD wants to add some business functionality to the UN/EDIFACT ORDERS (i.e., purchase order) message, that work would likely be undertaken by the ASC X12 Purchasing Subcommittee.

The Government Subcommittee has an organic capability to assist in the development of standards using UN/EDIFACT syntax. That capability is inherent in the mission of ASC X12 which, in addition to developing standards in ASC X12 syntax, entails serving as the national developer of standards in UN/EDIFACT syntax. The Government Subcommittee has already done a substantial amount of UN/EDIFACT standards development work for U.S. Customs Services, and as a result, Government Subcommittee members are well-versed in the design and maintenance of UN/EDIFACT standards.

Entry into the UN/EDIFACT arena from ASC X12 is through the Pan American EDIFACT Board (PAEB), covered in more detail in Appendix A. Appendix A also provides a summary of the present UN/EDIFACT organizational structure.

A private company, Data Interchange Standards Association, Inc., serves as the PAEB Secretariat.

PROCEDURES

ASC X12

Procedures followed by ASC X12 in developing and maintaining EDI standards may appear to be long, complex, labor-intensive, and often times, convoluted to those persons just becoming involved in the process. Notwithstanding, those procedures are more easily understood as they are used, and they are necessary for consensus building, the cornerstone of the standards-development process. Appendix A contains a general description of the procedure used to obtain approval of a new standard or change an existing standard.

Development of UN/EDIFACT standards faces essentially the same hurdles as those required for the development of ASC X12 standards. Because UN/EDIFACT standards are international, the standards-making process includes more steps than does the making of a national standard. Appendix A presents a general description of the procedure used to obtain approval of a new UN/EDIFACT standard.

STRUCTURAL DIFFERENCES BETWEEN ASC X12 AND EDIFACT

General

Originally, UN/EDIFACT used ASC X12 for its standards design guidance. The design of the first UN/EDIFACT message duplicated many aspects of ASC X12 transaction sets. That procedure enabled UN/EDIFACT to start quickly, but it copied ASC X12 problems as well. At a point in time, UN/EDIFACT began to follow its own message design philosophy and resolved many perceived problems with ASC X12 by incorporating such things as generic data elements, composites, the single date/time solution, and data segment clarification descriptions as part of its message design.[1] Appendix B presents a more detailed discussion of selected structural differences between ASC X12 and UN/EDIFACT standards.

While some of the terminology differs between the standards, both contain comparable building blocks. Each standard uses the data element as its fundamental building block. Data elements carry data characterized as numbers, amounts, quantities, code values, text, and the like. Data elements are grouped together in logical arrangements to convey related business information. That grouping of data elements is known as a segment. A message in UN/EDIFACT (or transaction set in ASC X12 language) is made up of a series of segments arranged in a logical order to facilitate the flow of data to and from application programs.

Both standards-making bodies learned at the outset of their efforts that they had to develop standards to support that business functionality that afforded trading partners the greatest return for their investment. In that regard, the procurement, transportation, product data, and material management areas have been reasonably well covered in both standards. ASC X12 transaction sets are compared to UN/EDIFACT messages in Appendix B. While that comparison does not include the respective business functionality, it does provide an indication that both standards-making bodies have made an effort to develop standards in the areas that will also be of primary interest to DoD. A more detailed

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[1] Briefing entitled *EDIFACT: The Next Generation of EDI Messages* given by Klaus-Dieter Naujok at several ASC X12 trimester meetings.

discussion of the similarities between the two standards can be found in Appendix B.

Data Elements

Data elements are the basic units of information in either an ASC X12 or a UN/EDIFACT transmission. They are often generic and their precise meanings may be determined by the context of the segment in which they are used or by additional qualifier data elements.

Data elements in both standards are identified as *simple, component,* or *composite.* A *simple* data element occurs in a segment outside the defined boundaries of a *composite* data structure. A *component* data element is a *simple* data element that occurs as a positioned member of a *composite* data structure. A composite data element (or structure) is a group of two or more component (or simple) data elements linked together to form a single data element. (Appendix B clarifies the types of data elements and presents a detailed discussion of the structural differences between ASC X12 data elements and UN/EDIFACT data elements.)

Because of the generic approach using qualifiers, UN/EDIFACT has more than 100 composites compared to only a few currently used in ASC X12.

Segments

Segments are the intermediate units of information in transaction sets and messages. They comprise a unique segment identifier; one or more composite data structures or simple data elements, each preceded by a data element separator; and a segment terminator.

The major difference between UN/EDIFACT and ASC X12 is that UN/EDIFACT attempts to use a "generic" solution in message design as opposed to ASC X12, which sometimes uses a "specific" approach. In the generic approach, the same segment can be used for many specific values. Thus, ASC X12 occasionally uses "long" segments containing many data elements, while UN/EDIFACT uses shorter segments in greater numbers in their messages.

Transaction Sets/Messages

A message or transaction set is a set of segments in the order specified in a directory. A UN/EDIFACT standard message (UNSM) is one that has been approved, published, and maintained by the UN. An ASC X12 standard is generally referred to as a draft standard for trial use (DSTU). Upon approval, DSTUs become ANSI standards.

Transaction set designers often ask for very specific segments to facilitate the flow of information into and out of application programs. Granting of those requests resulted in ASC X12 having much larger numbers of segments and data elements than UN/EDIFACT. In UN/EDIFACT, message designers tend to repeat the same segment but ask for new code values to be added to qualifier code lists.

In UN/EDIFACT, segments are combined into segment groups. That approach has the advantage of not using a particular segment if it is not needed during a certain transmission; in the ASC X12 "long-segment" approach, one might need to skip a large number of data elements before using the one at the end of a segment. UN/EDIFACT also uses only one generic, beginning-of-message segment, whereas ASC X12 currently has 60 specific beginning-of-transaction set segments.

Proponents of UN/EDIFACT point to ASC X12 as having too many beginning segments and too many ways to transmit dates as evidence of inefficiency. We believe the argument has merit only to the extent that ASC X12 is a larger standard to maintain. With ever-increasing transmission speeds and innovations in data compression, the size of one transmission versus the other appears to be relatively insignificant.

Conclusion

The ASC X12 and UN/EDIFACT standards are similar in some aspects and different in others. The differences are not deemed to be particularly relevant to a discussion of the readiness of DoD to migrate to UN/EDIFACT.

We find that the standards-making process always accommodates business functionality issues. The UN/EDIFACT development process has always resulted in a solution for business functionality, and while a developer may not be happy with all solutions (as in the case of transparent data), a solution has always been provided. We fully expect that situation to continue when DoD brings its business functionality to the UN/EDIFACT development table.

CHAPTER 4

Recommendations

This chapter provides our recommendations and a suggested strategic direction for migration.

GENERAL

The DoD should adopt a "one world — one EDI standard" policy, with that standard being UN/EDIFACT. To put that policy into practice, DoD must take the following steps:

- Allow market-place and resource constraints to dictate the timing and the additional use of, and eventual complete migration to, UN/EDIFACT standards

- In the near term, continue to trade using ASC X12 standards

- Add the ability to support UN/EDIFACT standards to the technical infrastructure

- Participate in the UN/EDIFACT standards-development process and ensure business functionality is contained in UN/EDIFACT standards

- Support Trading Partners using either the ASC X12 or UN/EDIFACT standards

- Support UN/EDIFACT-based pilot projects to build early experience, demonstrate commitment, and evaluate impacts.

STRATEGIC DIRECTION

Like any other endeavor, DoD should migrate to UN/EDIFACT through careful planning and meaningful execution of the plan. In that regard, DoD needs to take the following steps:

- Use these recommendations as the DoD strategic plan for migration to UN/EDIFACT.

- Support the strategic plan with an implementation plan detailing the specific tasks involved in the migration to UN/EDIFACT. That plan must

contain a list of milestone actions in chronological order based on the following:

► Estimated time to complete

► Priorities

► Availability of funding

► Assignment of responsibilities for all listed actions.

On the technical side, DoD must size the emerging DoD and Federal EDI systems for maximum flexibility and ensure the capability of supporting both ASC X12 and UN/EDIFACT standards.

In the area of migration control, DoD must take the following additional steps:

◆ Achieve central control over existing and potential EDI projects within DoD and allow decentralized execution of the EDI program

◆ Become involved in the ASC X12 and EDIFACT standards-making process.

The DoD can gain some immediate and practical experience in the use of UN/EDIFACT standards by initiating projects in two specific areas:

◆ Harmonization of international logistics

◆ Overseas procurement.

We recommend that DoD continue to trade and expand its trade with partners using ASC X12 standards while allowing the market-place and resource constraints to dictate the additional use of, and eventual complete migration to, EDIFACT standards. To this course of action, we add the need to gain some immediate experience in the use of UN/EDIFACT standards.

Figure 4-1 covers at a macro level a suggested time line for the major activities necessary to migrate to UN/EDIFACT.

Action	FY 94				FY 95				FY 96			
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Articulate a UN/EDIFACT strategy				▲								
Develop implementation plan				▲								
Size DoD EDI infrastructure					▲							
Establish telecommunication interconnectivity					▲							
Ensure DoD Business functionality is contained in UN/EDIFACT standards								▲				
Activate Architecture					▲							
Participate fully in UN/EDIFACT standards development				▲								▲
Complete development of application program												▲
Achieve central control over UN/EDIFACT projects				▲								
Select one or more projects on which to use UN/EDIFACT				▲								
Form a UN/EDIFACT users group				▲								
Begin to implement UN/EDIFACT EDI						▲						
Develop UN/EDIFACT implementation conventions						▲						

Figure 4-1.
UN/EDIFACT Migration Strategy — Milestone Chart

Standards-Making Organizations and Procedures

Standards-Making Organizations and Procedures

The American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 and the United Nations Electronic Data Interchange for Administration, Commerce, and Transport (UN/EDIFACT) both have formally structured organizations and procedures with which to monitor, administer, and process activities. This appendix presents a description of these two organizations — ASC X12 and UN/EDIFACT — and a discussion of the respective procedures and processes used by each.

ASC X12 ORGANIZATION

American National Standards Institute

The ANSI was founded in 1918 as the national coordinator for standards in the United States. ANSI provides an open forum for all concerned interests to identify standards needs, plan to meet those needs, and agree on standards.

In addition, ANSI coordinates the voluntary development of national consensus standards, approves standards as American National Standards, and serves as a clearinghouse and information center for American national and international standards.[1]

In 1979, it chartered a new committee, ASC X12, to develop uniform standards for the electronic interchange of business transactions.[2] Figure A-1 shows the organization of ASC X12.

The ASC X12 is the decision-making body responsible for developing the evidence of consensus necessary for approval of American National Standards. Subcommittees are assigned responsibility for specific standards development and standards maintenance activities, but their work must be ratified by the membership of ASC X12.[3]

The ASC X12 Standing Document 2: *Operations Manual* is the official source for information on standards-processing requirements. To maintain its accredited committee status, ASC X12 must follow these procedures to ensure compliance with the ANSI procedures for the development and coordination of American National Standards.

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[1] ASC X12 Standing Document 2: Operations Manual, revised edition, 1993.

[2] *ASC X12 Standards, Draft Version 3 (003030)*, Data Interchange Standards Association, Inc., ASC X12S/92-707, December 1992.

[3] ASC X12 Standing Document 2: *Operations Manual*, revised edition 1993.
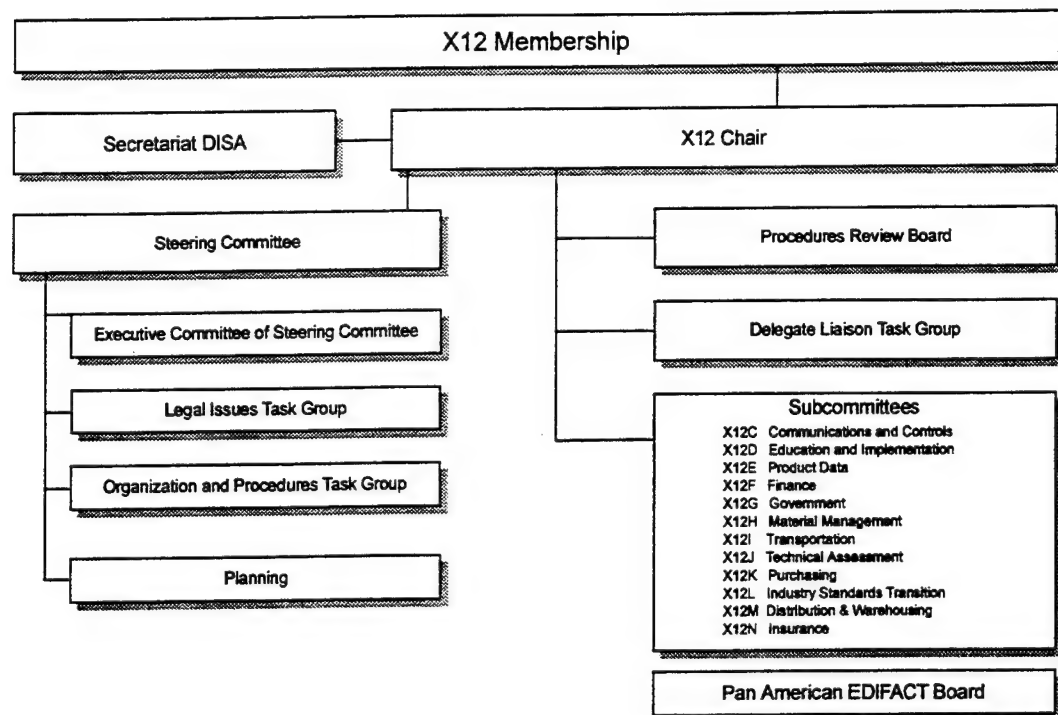
Source: 1993 DISA Publications Catalog, *Incorporating Introduction to EDI.*

Figure A-1.
ASC X12 Organization

Data Interchange Standards Association, Inc. (DISA)

The Data Interchange Standards Association, Inc. (DISA) was formed in 1987 to be the Secretariat and administrative arm of ASC X12. Its staff manages membership, balloting, international programs, standards maintenance, publications, the annual conference and exhibit, ASC X12 meetings, communications with ANSI on behalf of ASC X12, and other administrative duties required to support ASC X12.[4]

ASC X12 Steering Committee

The Steering Committee develops recommendations for the administration of ASC X12 in close coordination with the Secretariat. It is composed of the ASC X12 Committee Chair, Vice Chair, Subcommittee Chairs, and past officers. The Steering Committee has several standing groups: Executive Committee, Legal Issues Task Group, Organization and Procedures Task Group, and the ASC X12/EDIFACT Alignment Task Group.[5]

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[4] ASC X12 Standing Document 2: *Operations Manual,* revised edition, 1993.
[5] ASC X12 Standing Document 2: *Operations Manual,* revised edition 1993.

Procedures Review Board

The Procedures Review Board (PRB) has a primary responsibility to ensure that due process is followed before approval of new project proposals, release of documents for ASC X12 membership ballot, and publication of standards.

Pan American EDIFACT Board

Until 1993, the Pan American EDIFACT Board (PAEB) was a work group within the ASC X12 organization structure. Today, the PAEB is a separate entity as shown in Figure A-2. DISA serves as the PAEB Secretariat. The Delegate Liaison Task Group consists of official representatives of ASC X12, drawn primarily from the subcommittees, and unofficial representatives. The Technical Advisory Work Group provides technical assessment services to message developers similar to the service provided by the Technical Assessment Subcommittee of ASC X12.

ASC X12 Standard Releases

Since 1986, by approval of ANSI, the ASC X12 Secretariat (DISA) has published a series of versions and releases. Those documents represent ASC X12-approved revisions of those previously published American National Standards and new ASC X12-approved draft standards. ASC X12's purpose in publishing these versions and releases is to put current ASC X12-approved draft standards into the hands of users on a more frequent schedule. All draft standards for trail use (DSTUs) undergo the ANSI-required periodic public review process.[6]

ASC X12 PROCEDURES

The ASC X12 Standing Document 2: *Operations Manual* defines the operating procedures of ASC X12 in carrying out its mission.[7] Those procedures define the critical approval levels that must be achieved before a document can be published as an ASC X12 DSTU, an ASC X12 interpretation, an ASC X12 guideline, or a technical report. ASC X12 has determined that its standards development activities will result first in the approval of DSTUs, which are then considered for American National Standard status under ANSI-defined procedures[8] (see Figure A-3).

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[6] ASC X12 Standards, Draft Version 3 (003030), Data Interchange Standards Association, Inc., ASC X12S/92-707, December 1992.
[7] ASC X12 Standing Document 2: *Operations Manual*, revised edition, 1993.
[8] Ibid.
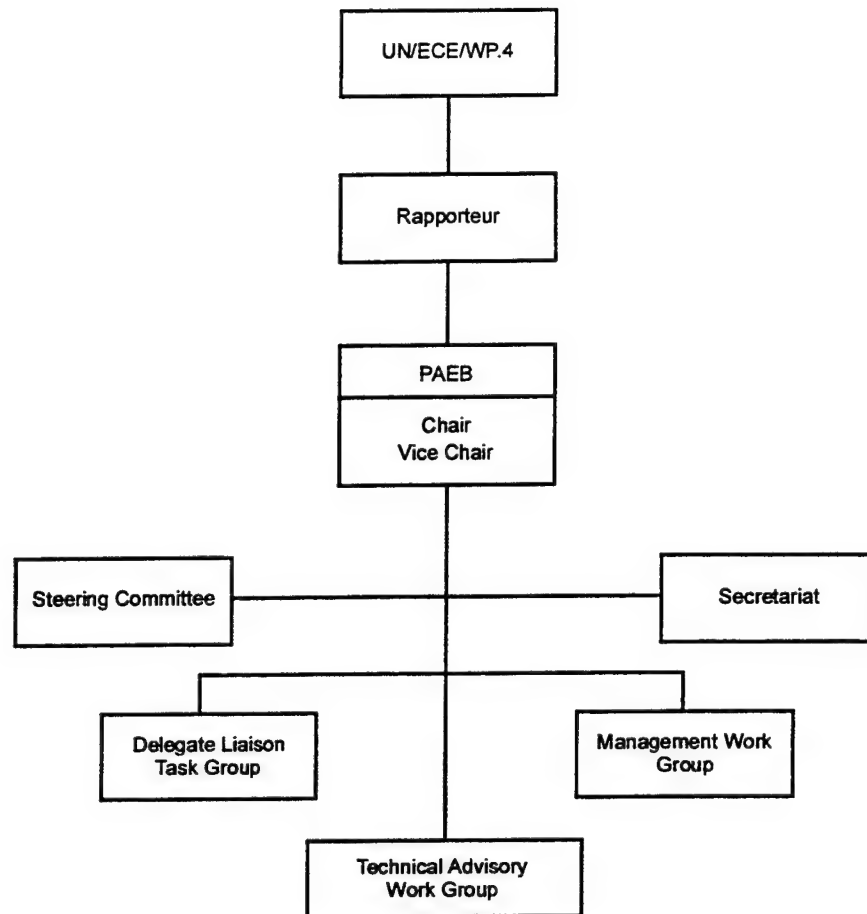
Note: Klaus-Dieter Naujok, ASC X12 Trimester Meeting, New Attendee Orientation, Awareness and Education Task Group, Miami, Florida, October 1993.

Figure A-2.
Pan American EDIFACT Board Organization

The *Operations Manual* covers the following four areas:

1. Procedures for draft standards for trial use

    a. Development procedures

    b. Maintenance procedures

2. Procedures for interpretations development and approval procedures

3. Procedures for X12 guidelines and technical reports

4. Procedures for American National Standards

Starting time

Minimum of 1 year

± 5 years

| ASC X12 Standards user requests for new transaction sets and maintenance | → | Procedures Review Board |

DISA data base ← ASC X12 Technical Assessment Subcommittee ← ASC X12 Standards Development Subcommittee

Working documents

Procedures Review Board

ASC X12 members vote on new standards and maintenance

ASC X12 Draft Standards Publications

ANSI Public Review

American National Standard

Note: Based on information contained in ASC X12 EDI, Standing Document 2: *Operations Manual*, revised edition, 1993.

Figure A-3.
ASC X12 Procedures

UN/EDIFACT ORGANIZATION

The United Nations Economic Commission for Europe (UN/ECE) is one of the five major economic and social commissions established by the Economic and Social Council of the United Nations. It embraces North American and Eastern and Western Europe. The UN/ECE currently comprises 34 member states; in addition, any country that is a member of the United Nations and has an interest in a given subject may participate in UN/ECE meetings. Certain approved intergovernmental and nongovernmental organizations may participate in certain committees (see Figure A-4).

A-7

```
                    ┌──────────────────┐
                    │  United Nations  │
                    └──────────────────┘
                             │
                    ┌──────────────────┐
                    │ General Assembly │
                    └──────────────────┘
                             │
                    ┌──────────────────────┐
                    │ Economic and Social Council │
                    └──────────────────────┘
```

Standards approval

Standards development

| United Nations |
| General Assembly |
| Economic and Social Council |
Regional Economic Commission	UN/ECE Economic Commission for Europe	ISO (International Organization for Standardization)
Committee on the Development of Trade	TC154 ISO Technical Committee
WP.4 Working Party 4 on Facilitization of International Trade Procedures	
GE.1 Experts on Data Elements and Automatic Data Interchange	GE.2 Experts on Procedures and Documentation
UN/EDIFACT Rapporteurs	
Pan American EDIFACT Board	Australia/New Zealand EDIFACT Board	Western Europe EDIFACT Board	Asian EDIFACT Board	Eastern Europe EDIFACT Board	African EDIFACT Board

Note: Based on *Introduction to UN/EDIFACT*, Data Interchange Standards Association, Inc., April 1991.

Figure A-4.
UN Standards Organization

Working Party

The UN/ECE Working Party 4 on Facilitation of International Trade Procedures (WP.4) is a subsidiary body of the Committee on the Development of Trade. It comprises experts on data elements and automatic data interchange (GE.1) and experts on procedures and documentation (GE.2), all of whom are appointed by their governments or by organizations recognized by the UN/ECE and UN/EDIFACT rapporteurs.

UN/EDIFACT Rapporteurs

Individual governments nominate UN/EDIFACT rapporteurs and WP.4 appoints them. They are requested to implement a common and agreed upon mandate for a certain area of jurisdiction.[9] The mandate is as follows:

♦   To set up a consultative machinery

---

[9] The UN/EDIFACT Rapporteurs' Procedures & Message Documentation Rules.

- ◆ To establish the facilities required to develop, maintain, and implement the UN/ECE recommendations on standards, as they relate to syntax, data elements, segments, message design guidelines, and messages

- ◆ To develop and offer technical assessment facilities

- ◆ To develop any other appropriate documentation and procedures to assist in the implementation of the UN/ECE recommendations on EDI

- ◆ To provide coordination facilities between them and the WP.4 secretariat.

Rapporteur Advisory and Support Teams (RTs) are appointed by UN/ECE WP.4 and represent Western Europe, Eastern Europe, Pan-America, Asia, Africa, and Australia/New Zealand. The RTs also coordinate maintenance procedures for the UN/EDIFACT syntax rules and the UN/EDIFACT directory sets with the UN/ECE secretariat.

Rapporteurs' general duties include the following:

- ◆ Implementing the WP.4 mandate, reporting to GE.1

- ◆ Appointing the secretariat

- ◆ Holding joint meetings with other RTs

- ◆ Consulting with trade organizations

- ◆ Coordinating development of UN Standard Messages (UNSMs)

- ◆ Presenting written reports of activities, proposals on UNSMs, and future plans

- ◆ Serving on joint development projects resulting from WP.4 meetings

- ◆ Ensuring agreement on content of submissions and submitting in a timely manner

- ◆ Preparing agendas and forecasts

- ◆ Attending Joint Rapporteurs Team (JRT) meetings

- ◆ Holding at least two meetings a year

- ◆ Publishing schedules and agenda for the meetings

- ◆ Ensuring their work groups are represented at the biannual meetings

- ◆ Providing discussion items for the meetings

- ◆ Distributing meeting reports

- ◆ Publishing decisions ratified by RTs.

WORKING GROUP

The rapporteur working group's duties include the following:

- ◆ Following UN/EDIFACT procedures when reviewing work

- ◆ Providing prior notification of delay to the secretariat

- ◆ Following UN/EDIFACT procedures when communicating

- ◆ Following UN/EDIFACT procedures when participating in a joint activity

- ◆ Confirming objectives of work

- ◆ Establishing timetables

- ◆ Agreeing on procedures

- ◆ Producing minutes.

REGIONAL UN/EDIFACT BOARDS

Regional UN/EDIFACT boards are appointed locally to support the rapporteur in the execution of his/her responsibilities. The constitution of boards is not regulated by WP.4 but varies to allow for regional differences in geography, language, and political environment. The boards also provide a forum for regional representation and consensus to the rapporteur. Boards coordinate message development, technical assessment, maintenance, and documentation and promote UN/EDIFACT standards.

Joint Rapporteurs Meetings

Twice a year, the rapporteurs meet in joint session (JRT meetings) to provide a forum at which UN/EDIFACT bodies meet to coordinate regional positions into international standards. JRT meetings are not part of the direct standards-development or education process. Instead, they provide a forum for consensus building. The organization supporting the rapporteurs is shown on Figure A-5.
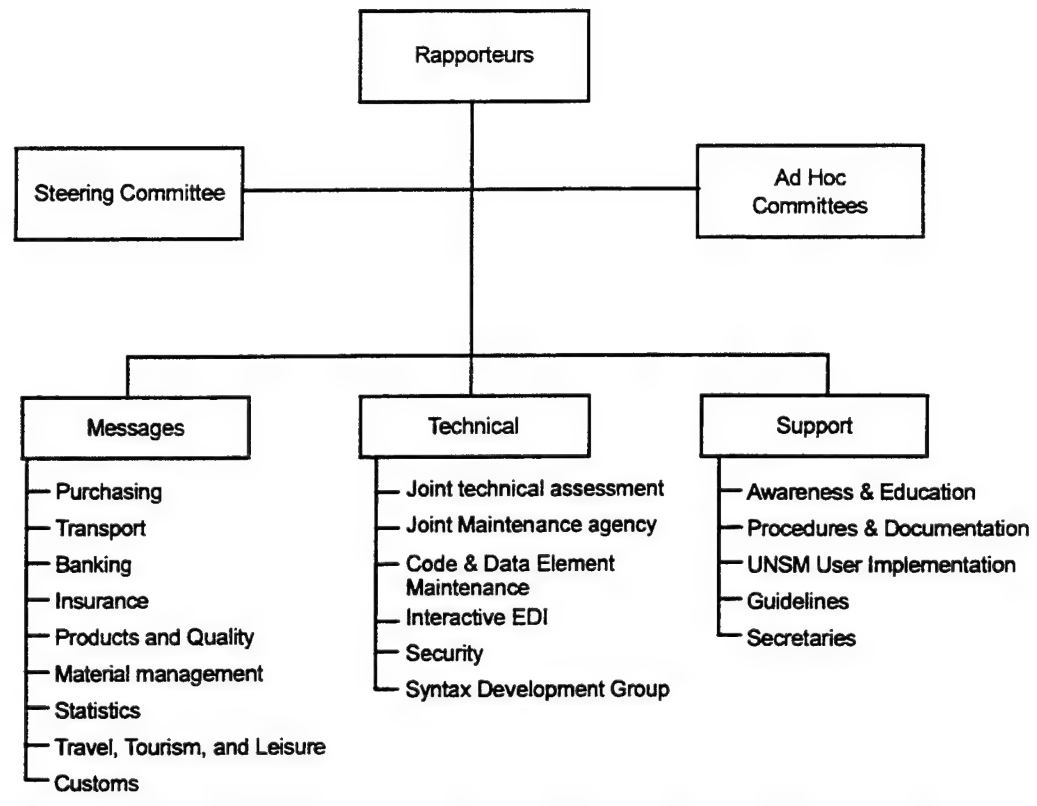
Note: Klaus-Dieter Naujok, *ASC X12 Trimester Meeting, New Attendee Orientation, Awareness and Education Task Group*, Miami, Florida, October 1993.

Figure A-5.
JRT Meeting Organization

UN/EDIFACT PROCEDURES

The UN/EDIFACT procedures govern the development of UNSMs and their associated directories and documentation. They also include change requests and conformance analysis procedures. These procedures should be used by organizations wishing to propose UNSM development or changes to existing messages or their components. The working language for UN/EDIFACT is English, and six standard procedures are defined within UN/EDIFACT procedures:

◆ New UNSM development

◆ Formal changes

- ◆ Code requests

- ◆ Informal document circulation

- ◆ Informal changes

- ◆ Conformance analysis.
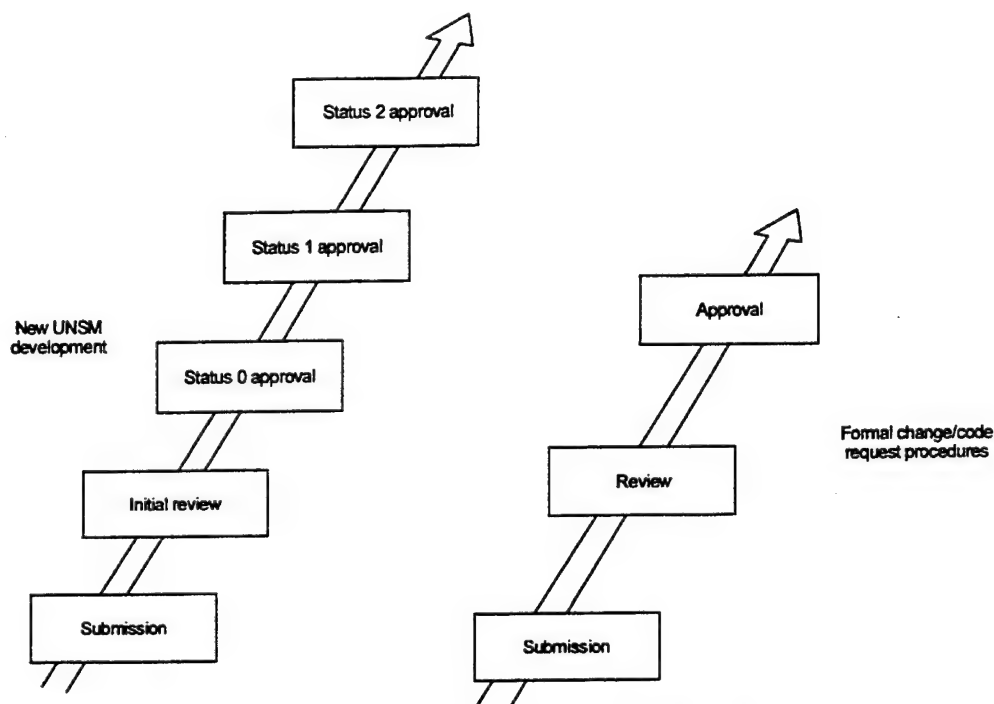
Note: Based on formal and informal presentations at various UN/EDIFACT sessions.

Figure A-6.
UN/EDIFACT Procedures

Messages and directories are given certain "status" once approved within the UN/ECE (see Figure A-6).[10]

- ◆ Status 0 — draft document

  - ► Rapporteur establishes a working group for single or joint message development.

  - ► Work is progressing but has not reached an advanced stage. It is submitted to WP.4 for information only.

  - ► Working group agrees the message is ready for Status 0.

  - ► Request for Status 0, including necessary forms and documentation, is sent to regional technical assessment group.

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[10] The UN/EDIFACT Message Design Guidelines.

- ► Conformance to standards assessed and guidance provided.

- ► If conformance to standards is achieved, regional secretariat assigns Status 0 and forwards copies of the developmental work to the other regions and to WP.4 secretariat.

- ► Regions not participating in the development have 6 months in which to provide comments on the Status 0 message.

- ◆ Status 1 — draft recommendation. The document has been approved for trial use. The steps leading to Status 1 are as follows:

  - ► If all regions approve the development, the controlling rapporteur recommends Status 1 to WP.4.

  - ► If all regions oppose the development, the rapporteur can recommend to the developer that the message be withdrawn.

  - ► If the regions are divided in their opinions, the rapporteur has the following options:

    - ◆ Re-enter the development after making modifications suggested by dissenting regions

    - ◆ Submit the work to WP.4 with a notice that unanimity cannot be reached

    - ◆ Recommend to the developer that the message be withdrawn

    - ◆ Stand aside. (The requester can appeal the decision if Status 1 is not granted.)

  - ► Decisions on status rest with WP.4.

    - ◆ WP.4 can assign Status 1, reassign Status 0, or approve the withdrawal of the development request.

    - ◆ If approved, the secretariat will add the Status 1 message to the trial directories and within a month of the decision, notify the developer of the decision to grant Status 1.

    - ◆ Upon notification, the user community can test the message on a trial basis for at least 12 months.

- ◆ Status 2 — recommendation. The document has been approved by WP.4 as a formal recommendation and registered as a United Nations Standard Message. It is ready for full implementation. The steps leading to Status 2 are as follows:

  - ► After the trial period ends, all rapporteurs send comments to the supporting secretariat.

  - ► Status 1 approval procedures are repeated for Status 2.

  - ► If approved by WP.4, the message becomes Status 2 and WP.4 publishes it as a UNSM.

As each document changes status, it may be revised. To ensure precise identification, the front page of each document carries the full title and a reference to its status, the revision number, and the date of issue in the International Standards Organization (ISO) format, e.g. 93-09-20. The revision number starts at 0 (zero) indicating the first issue of the document. For example, Message Design Guidelines S2R2 would indicate that the status of the document was at the level of a recommendation and that it was in Revision 2; Letter of Credit Message S0R4 would indicate that its status was that of a draft document and that it was in Revision 4.

The ISO 9735 document (*UN/EDIFACT Syntax Rules*) provides for version/release numbers to be used in the UNH or UNG service segments.[11] The UN uses three procedures for the unique identification of messages, one for UNSMs, one for messages that have reached Status 1, and one for messages at Status 0.

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[11] UNH is code for UN/EDIFACT message; UNG is code for UN/EDIFACT functional group header.

Differences Between ASC X12 Standards and UN/EDIFACT Standards

Differences Between ASC X12 Standards and UN/EDIFACT Standards

This appendix supports Chapter 2 and provides a more detailed technical comparison of the structural differences between American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 and United Nations Electronic Data Interchange for Administration, Commerce, and Transport (UN/EDIFACT).

We made no effort to include all possible differences between ASC X12 and UN/EDIFACT. We did, however, make an attempt to present those differences felt to be significant and at the same time, to provide the reader with a sampling of the techniques used to develop standards.

STRUCTURAL DIFFERENCES

Data Elements

As stated in Chapter 3, data elements are the fundamental building blocks of both ASC X12 and UN/EDIFACT standards. They perform much the same function in both standards with the main difference being in terminology rather than functionality.

◆ ASC X12 standards have three types of data elements:

▶ A simple data element can be one of three types:

◆ One that requires no qualification

◆ One that requires qualification and is referred to as a qualified data element

◆ One that provides another data element with a more precise meaning — a qualifier.

▶ A component data element is a simple data element that is used within a composite data element.

▶ A composite data element is a group of two or more component (or simple) data elements linked together to form a single data element.

- ◆ UN/EDIFACT standards have the following types of data elements:

    - ► A simple data element can be one of three categories:

        - ◆ When it defines a precise business function, it is termed a *specific simple data element* (e.g., data element 5284 — *Unit Price Basis*).

        - ◆ When it defines a global business function that could be used across the widest range-of-industry area, it is termed a *generic simple data element* (e.g., data element 6064 — *Quantity Difference*).

        - ◆ When it gives a generic simple data element a precise business function, it is termed a *data element qualifier* (e.g., data element 6063 — *Quantity Qualifier*)

    - ► A simple data element has the following characteristics:

        - ◆ Reference number in the EDIFACT directory

        - ◆ Name

        - ◆ Representation

        - ◆ Semantic definition.

    - ► UN/EDIFACT also has component and composite data elements.[1]

Table B-1 illustrates a data element listing from ASC X12 standards. The listing shows the number of the data element (16), its name (Charge Method of Payment), the data element type (ID, which indicates that an alphanumeric code list is associated with the data element), the minimum and maximum size of the allowable data field (in this case 1), a definition of the data element (Code defining method of payment), the code list (with Codes A, B, C, D, E, and P shown), and the definition and exlanation of each code (e.g., the definition of Code A is Prepaid Cash).[2]

Table B-2 illustrates a simple data element listing from the UN/EDIFACT standards. The listing shows the number of the data element (2380), its name (Date/Time/Period), the data element type (an, which indicates that the data element will contain an alphanumeric data stream), the maximum size of the allowable data field (in this case, 35), the minimum size (always 1), and a definition of the data element.[3]

---

[1] EDCD (EDIFACT Composite Data Elements Directory), which is part of the United Nations Trade Data Interchange Directory (UNTDID).

[2] *ASC X12 Standards,* Draft Version 3 (003030), Data Interchange Standards Association, Inc., ASC X12S/92-707, December 1992.

[3] EDED (EDIFACT Data Elements Directory), part of International Standards Organization 7372, which is part of the UNTDID.

Table B-1.
ASC X12 Data Element Listing

16	Charge Method of Payment

TYPE = ID MIN = 1 MAX = 1
Code defining method of payment

Code	Definition and Explanation
A	Prepaid Cash
B	Prepaid Credit
C	Collect Cash
D	Collect Credit
E	Collect
P	Prepaid

Table B-2.
UN/EDIFACT Simple Data Element Listing

2380	Date/Time/Period	an..35

The value of a date, a date and time, a time or of a period in a specified representation.

Table B-3 illustrates a UN/EDIFACT composite data element listing from standards. The listing shows the number of the data element (C507), its name (Date/Time/Period), the definition of the composite data element, the number of each of the data elements that make up the composite data element (2005, 2380, and 2379), the definition of each included data element, the maximum size of the allowable data field (in this case 3, 35, and 3, respectively), a minimum size of 1 is implied, and the requirement designator indicating that when the composite data element is used, all three elements must be present (as indicated by the designation "M", which means mandatory). A composite segment listing for ASC X12 would look essentially the same.

The number of data element types is limited. These types are defined by the nature of the data carried in the data element. For example, if a data element is an "ID" type, it means that it is an identifier. Identifier data elements are associated with code values. Table B-4 is a listing of the data element types found in ASC X12 and UN/EDIFACT.[4]

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[4] *ASC X12 Standards,* Draft Version 3 Release 3 (003030), Data Interchange Standards Association, Inc., ASC X12S/92-707, December 1992.

Table B-3.
UN/EDIFACT Composite Data Element Listing

C507	Date/Time/Period		
Date and/or time relevant to the specified date/time type			
2005	Date/time/period qualifier	**M**	an..3
2380	Date/time/period	**M**	an..35
2379	Date/time/period format qualifier	**M**	an..3

Table B-4.
ASC X12 and UN/EDIFACT Data Element Types

Type	ASC X12	UN/EDIFACT
Numeric	Nn (n indicates decimal positions)	n
Decimal number	R	
Identifier	ID	
String	AN	an
Date	DT (YYMMDD)	
Time	TM (HHMMSSd..d)	
Binary	B	
Fixed-length string	FS	

Under ASC X12, relational conditions between two or more data elements are defined in a syntax note that begins with a letter followed by the last two digits of the reference designator of the affected data elements. The expression P010203 is an example of a relational condition. In that example, the syntax demands that if data element 01 is present, then data elements 02 and 03 must also be present. An "R" condition code might be expressed as R0203. That condition is defined as follows: either the second or the third data element in the segment must be present. (Both may be present.) Table B-5 lists the ASC X12 relational condition codes and their descriptions.

Table B-5.
ASC X12 Relational Conditions

Type	Description
P (Paired)	If any specified data element is present, all of the specified elements must be present.
R (Required)	At least one of the specified data elements must be present.
E (Exclusion)	Not more than one of the specified data elements may be present.
C (Conditional)	If the first specified data element is present, all other specified data elements must be present. However, any or all of the data elements not specified as the *first* in the condition may appear when the *first* is not present.
L (List conditional)	If the first specified data element is present, at least one of the remaining specified data elements must be present. However, any or all of the data elements not specified as the *first* in the condition may appear when the *first* is not present.

Segments

A segment in either standard is a construction of related data elements and composite data elements. UN/EDIFACT uses these terms when defining service segments.

◆ Envelopes

    ► Interchange

    ► Functional group

    ► Message

◆ Delimiter string advice

◆ Section separator.

Segments can be found at all levels of an interchange. For example, some segments are used in the enveloping portion of a transmission. In other words, the segments are carrying data related to the interchange and not the related business information per se. Other segments are designed to carry specific, related data that are part of the business information being transmitted.

Table B-6 provides a comparison of ASC X12 and UN/EDIFACT interchange codes. The listing in that table is for the interchange level, functional group, and transaction set (ASC X12) or message (UN/EDIFACT).

Table B-6.
ASC X12 and EDIFACT Interchange Codes

Standard	Code	
	ASC X12	UN/EDIFACT
Interchange		
– Interchange header	ISA	UNB
– Interchange trailer	IEA	UNZ
– Service string advice	*No equivalent*	UNA
Functional group		
– Functional group header	GS	UNG
– Functional group trailer	GE	UNE
Transaction set/message		
– Transaction set/message	ST	UNH
– Beginning segment[a]		BGM
– Transaction set/message trailer	SE	UNT

[a]Uses a beginning segment but it tends to be transaction-set specific.

A segment has the following characteristics:

◆ Segment tag (reference ID)

◆ Related simple data elements

◆ Related composite data elements.

A segment group is an assembly of the following:

◆ Trigger segment (first segment in the group)

◆ Related segments

◆ Related segment groups.

In a segment, each simple or composite data element is further characterized by a reference designator and a data element reference number. Data elements may have additional attributes, including a condition designator and a semantic note designator. Four types of data element conditions exist in ASC X12 syntax:

◆ Mandatory

◆ Optional

◆ Floating

◆ Relational (conditional).

UN/EDIFACT uses only the mandatory and conditional designations.

The ASC X12 and the UN/EDIFACT have slightly different ways of portraying segments. Table B-7 shows an ASC X12 segment listing example[5] and Table B-8 shows one for UN/EDIFACT.[6]

Table B-7
Example of ASC X12 Segment Listing

N1	**Name**				
	To identify a party by type of organization, name, and code				
REF	**ELEMENT ID**	**NAME**	**ATTRIBUTES**		
01	98	Entity Identifier Code	**M**	ID	2/2
02	93	Name	**X**	AN	1/35
03	66	Identification Code Qualifier	**X**	ID	1/2
04	67	Identification Code	**X**	AN	2/17
05	706	Entity Relationship Code	**O**	ID	2/2
06	98	Entity Identifier Code	**O**	ID	2/2

SYNTAX NOTES

02 R0203 – At least one of N102 or N103 is required.

03 P0304 – If either N103 or N104 is present, the other is required.

COMMENTS

04 This segment, used alone, provides the most efficient method of providing organizational identification. To obtain this efficiency the "ID Code" (N104) must provide a key to the table maintained by the transaction processing party.

05 N105 and N106 further define the type of entity in N101.

Regardless of how segments look in ASC X12 or UN/EDIFACT listings, they both have essentially the same characteristics. Both are listings of included data elements along with the attributes of use for the data elements (i.e., mandatory, optional, etc.). Table B-9 presents a listing of ASC X12 segment attributes.

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[5] *ASC X12 Standards,* Draft Version 3 Release 3 (003030), Data Interchange Standards Association, Inc., ASC X12S/92-707, December 1992.

[6] EDSD (EDIFACT Segments Directory), which is part of the UNTDID.

Table B-8.
Example of UN/EDIFACT Segment with a Composite Data Element

INP	PARTIES TO INSTRUCTIONS		
Function: To specify parties to an instruction and where relevant, the instruction.			
C849	PARTIES TO INSTRUCTIONS	M	
3301	Party enacting instruction identification	M	an..17
3285	Recipient of the instruction identification	M	an..17
C522	INSTRUCTION		
C4403	Instruction qualifier	M	an..3
4401	Instruction, coded	C	an..3
1131	Code list qualifier	C	an..3
3055	Code list responsible agency, coded	C	an..3
C850	STATUS OF INSTRUCTION		
C4405	Status, coded	M	an..3
3036	Party name	C	an..35

Table B-9.
ASC X12 Segment Attributes

Designator	Requirement
(M) Mandatory	This data segment shall be included in the transaction set.
(O) Optional	The presence of this data segment is at the option of the sending party.
(F) Floating	Used only for the NTE segment that may appear anywhere in the transaction set between the transaction set header and the transaction set trailer.
(X) Relational (conditional)	Used only when a stated condition exists.

Semantic and Syntax Notes

In ASC X12, a semantic note provides information to the intended user of a segment within the context of a particular transaction set. Semantic notes provide information regarding the intended meaning of a designated data element and also define relational conditions among data elements in a segment based on presence of a specific value in one of the data elements. Syntax notes define

dependencies based on the presence or absence of other data elements in the segment.

Table B-10 is a comparison of the numbers of segments in ASC X12 and UN/EDIFACT. Again, no inference should be drawn from these numbers since each standards is operated from a different design philosophy.

Table B-10.
Numbers of ASC X12 and UN/EDIFACT Segments

Standard type	ASC X12	UN/EDIFACT
Segments	> 700	> 80
Beginning segments	60	1

Notes: Briefing entitled *EDIFACT: The Next Generation of EDI Messages*, Klaus-Dieter Naujok, October 1993. Numbers are estimates.

At this point, we can summarize some of the more significant differences between ASC X12 and UN/EDIFACT. Table B-11 provides the list of differences.

Table B-11.
Selected ASC X12 and UN/EDIFACT Differences

ASC X12	UN/EDIFACT
One message for many uses	One message — one purpose
Long multi-entity segments	Short, single-entity segments
700 + segments	80 + segments
1 composite	100 + composites
1,100 + data elements	310 data elements
60 beginning segments	1 beginning segment
100 + date/time data elements	1 date/time composite
Long segments (i.e., some contain 34 data elements)	Minisegments

Repetition of Data

Both ASC X12 transaction sets and UN/EDIFACT messages provide similar ways to convey multiple occurrences of specific sets of data (e.g., items to requisition and receive, with multiple dates):

◆ Maximum use of a single segment

◆ Loop of a group of segments

◆ Nesting loops within loops

◆ Hierarchical loops (not in UN/EDIFACT).

A loop in ASC X12 is defined as a group of segments that may be repeated. The name of the loop is identified by the segment identifier (SEG.ID) of the first segment in it. The number of times the loop may be repeated appears in the LOOP REPEAT column after the first segment of the loop. The first segment of a loop may only have a maximum use of one. The maximum use of all other segments in the loop may vary by need.

Loops may have subordinate loops nested within them. Those nested loops are identified by an additional first SEG.ID, loop repeats, and lines drawn inside the previous line. Nesting may occur in an indefinite number of levels although four or five levels of nesting is a more common maximum seen in existing standards.

Transaction Sets and Messages, Including Their Enveloping Structures

ASC X12 TRANSACTION SETS

In ASC X12, a transaction set is uniquely identified by a three-digit number and a name; e.g., 810 *Invoice* or 850 *Purchase Order*. In order to transmit different types of transaction sets from one party to the other, a hierarchical structure of headers and trailers allows the data to be segregated logically for interpretation by the receiver.

Transaction sets begin with an ST segment and end with an SE segment. Segments appearing between the SE and ST segments are uniquely identified by a 2- or 3-character segment identifier and a name. Transaction sets of the same functional group are transmitted by beginning such a group with a GS segment and ending the group with a GE segment. One or more functional groups are bound together for transmission within an interchange envelope made up of an ISA segment and an IEA segment. Envelopes provide the following:

◆ Verification of proper transmission

- ◆ Time and date stamping of transmission

- ◆ Routing information

- ◆ Version control information.

UN/EDIFACT Messages and Envelopes

The first and last segments in the UN/EDIFACT message [i.e., the UNH (transaction set/message) and UNT (transaction set/message trailer) segments] are mandatory service segments, defined in the UN/EDIFACT syntax rules (ISO 9735). UNH defines — among other things — the message type, version, and release number. The remaining segments (with tags AAA to FFF) are user data segments. Each message type has a unique six-letter code (e.g., INVOIC for the commercial invoice) that describes the function of the message type in general terms.

A UN/EDIFACT message defines several key items:

- ◆ The segment that makes up a message

- ◆ The sequential order of segments/segment groups

- ◆ The maximum times a segment/segment group may repeat

- ◆ Whether a segment/segment group is mandatory or conditional.

The beginning segment in UN/EDIFACT (as in ASC X12) defines such things as the following:

- ◆ Purpose, type, and action

- ◆ Date

- ◆ Unique identification.

Segments are identified by a position number within each table. Regardless of which syntax it is carried in, a segment also has a requirement designator associated with it indicating its appearance in the data stream of a transmission, as shown in Table B-9 using ASC X12 terminology.[7]

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[7] *ASC X12 Standards*, Draft Version 3 Release 3 (003030), Data Interchange Standards Association, Inc., ASC X12S/92-707, December 1992.

An ASC X12 transaction set consists of from one to three tables (groups of segments).[8] The number of tables to include in a transaction set is typically determined on the basis of how the data are to be manipulated by an application program.

When the data are composed of header information applicable to an entire transaction set, those detail data can and often do repeat, as in the case of multiple line items in a purchase order. A transaction set will typically consist of three tables (although detail data can also repeat in a one-table transaction set). When any of those tests do not apply, the number of tables can be decreased. Typically, when summary data are not called for, a transaction set will have one or two tables. Ultimately, the way in which an application program is designed to use data is the best measure of how a transaction set should be designed. Table B-12 illustrates the potential table structure in an ASC X12 transaction set.

Table B-12.
ASC X12 Transaction Set Tables

Table 1 – Header	Area at the beginning of the transaction set containing information pertaining to the entire transaction set
Table 2 – Detail	The actual body of the business transaction
Table 3 – Summary	Area at the end of the transaction set containing information that addresses the results of summaries of information in the detail area

CONTROL CHARACTERS

Separation of data elements within segments and segments within transaction sets and messages is essential to keeping track of the data stream. In both ASC X12 and UN/EDIFACT, separation and control are maintained through a series of control characters. The respective syntaxes define the control characters shown in Table B-13.[9]

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[8] Ibid.

[9] *ASC X12 Standards*, Draft Version 3 Release 3 (003030), Data Interchange Standards Association, Inc., ASC X12S/92-707, December 1992.

Table B-13.
ASC X12 and UN/EDIFACT Control Characters

Control characters	ASC X12	UN/EDIFACT
Data element separator		+
Segment ID/tag separator		+
Component data element separator		:
Segment terminator		'
Release character (tells that a character follows)		?

Note: ASC X12 not defined.

Transaction sets and messages are classified by their status to indicate the degree to which their designs have been reviewed. The designations of the status are as shown in Table B-14.[10]

Table B-14.
Transaction Set and Message Status Designations

UN/EDIFACT Status 2	Status 2 messages are approved by WP.4 of the United Nations as formal recommendations and registered as United Nations Standard Messages.
UN/EDIFACT Status 1	Status 1 messages indicate an implementation stage; they have been approved by WP.4 of the United Nations for trial use.
UN/EDIFACT Status 0	Status 0 messages indicate a (message standard) developmental stage. Draft document submitted to WP.4 for information only.
ANSI Standard	An ANSI Standard is achieved only after a DSTU has successfully gone through the ANSI standard approval process.
ASC X12 DSTU	A DSTU (draft standard for trial use) is the result of the ASC X12 approval process. It is not an ANSI Standard.

BUSINESS FUNCTIONALITY

The ASC X12 and the UN/EDIFACT have numerous transaction sets and messages, respectively, that carry similar business functionality. DoD has yet to undertake the analysis that would show which transaction sets in ASC X12 have equivalents in UN/EDIFACT messages. Table B-15 depicts selected ASC X12 transaction sets in such areas as engineering and management, operations, purchasing and product data, manufacturing, quality and safety, finance, transportation, and warehousing. Table B-16 depicts those business functions covered by UN/EDIFACT messages.

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[10] The UN/EDIFACT Message Design Guidelines.

Table B-15.

Examples of Selected ASC X12 Transaction Sets Broken Down by Functional Area

Engineering and management	Operations	Purchasing and product data	Manufacturing	Quality and safety	F
Contract/Award	Promotion Announcement	Request for Quote	Order Inquiry	Nonconformance Report	Invoice
Technical Information	Health Care Claim	Quote	Order Status Report	Material Safety Data Sheet	Credit Ad
		Purchase Order	Planning Schedule	Test Results Report	Service Ir
		P.O. Acknowledgment	Inventory Inquiry		Credit Ad
		P.O. Change	Product Transfer Information		Expense
		P.O. Change Acknowledgment	Receiving Report		Payment
		Catalog	Product Activity Report		Financial
		Price Authorization	Production Sequence		Accounts
		Lease Schedule	Product Transfer/Resale		Lockbox
		Price Change	Delivery/Return Acknowledgment		Applicatic
					Payment
					Tax Repc
					Financial
					Debit Aut
					Cancel Pa
					Control T
					Freight In
					Functiona

Note: Based on functional areas described by Bud Orlando, TRW, CALS/CE Report, Volume 5, Number 9, September 1992, Knowledge Base International, He

	Finance	Transportation	Warehousing	All
e	Invoice	Air Shipment Information	W/H Shipping Order	Crypto Service Message
Data	Credit Advice	Air Freight Invoice	W/H Stock Transfer	Application Advice
port	Service Invoice	Air Shipment Message	W/H Stock Receipt	Text Message
	Credit Adjustment	Revenue Receipts Statement	W/H Inventory Adjustment	Electronic Form Structure
	Expense Statement	Motor Carrier Information	Response to Load Tender	Item Maintenance
	Payment Order	Motor Carrier Invoice		File Transfer
	Financial Report	Motor Carrier Ship Inquiry		Functional Acknowledgment
	Accounts Analysis	Motor Carrier Route Guide		
	Lockbox	Motor Carrier Tariff Information		
	Application Advice	Ocean Booking Reservation		
	Payment Status Number	Ocean Confirmation		
	Tax Reporting	Ocean Booking Cancellation		
	Financial Returns	Ocean Shipping Instructions		
	Debit Authorizations	Customs Ocean Manifest		
	Cancel Payments	Ocean (O) Freight Invoice		
	Control Totals Numbers	O/Shipment Inquiry		
	Freight Invoice	O/Shipment Status		
	Functional Group Totals	O/Terminal Operations		
		O/Vessel Schedule		
		O/Vessel Stow Plan		
		Customs Ocean Release		

ise International, Houston, Texas.

Table B-15.

Examples of Selected ASC X12 Transaction Sets Broken Down by Functional Area (Continued)

Engineering and management	Operations	Purchasing and product data	Manufacturing	Quality and safety	Fina

Finance	Transportation	Warehousing	All
	Customs Ocean Manifest		
	O/Carrier Interchange		
	Rail Carrier (R/C) Shipment Information		
	R/C Freight Invoice		
	R/Car Hire Settlements		
	R/C Waybill		
	R/C Retirement Activity		
	Railroad Station Activity		
	Transportation Rate Request		
	Trans. Rate Docket Log		
	Trans. Ratemaking		
	Trans. Rate Group		
	Trans. Misc. Rates		
	Trans. Rate Table		
	Ship/Notice Information		
	Shipment Billing		
	Shipment Information		
	Shipping Schedule		

Table B-16.
Examples of Selected UN/EDIFACT Messages Broken Down by Functional Area

Engineering and management	Operations	Purchasing and product data	Manufacturing	Quality and safety	Finance
None	Job Application Result	Request for Quote	None	Quality Data	Invoice
	Job Information Demand	Quotes		Safety and Hazard Data Sheet	Credit Advice
	Job Application Proposal	Purchase Order		Sanitary/Phytosanitary Certificate	Extended Credit Advice
	Job Offer Confirmation	P.O. Response		Dangerous Goods Notification	Debit Advice
	Job Offer Modification	P.O. Change Request		Dangerous Cargo List	Extended Payment Orde
	Job Offer	Price Catalog			Payment Order
	Patient ID				Remittance Advice
	Medical Prescription				Multiple Payment Order
	Medical Service Request				Chart of Accounts
	Medical Service Report				Banking Status
	Medical Resource Usage/Cost				Trial Balance
					Report of Bank Transac
					Direct Balance of Payme Declaration
					Balance of Payment Sta
					Multiple Credit Advice
					Current Account
					Accounting Entries
					Financial Cancellation
					Financial Statement
					Direct Debit
					Documentary Credit Adv

Note: Based on functional areas described by Bud Orlando, TRW, CALS/CE Report, Volume 5, Number 9, September 1992, Knowledge Base International, Ho

Finance	Transportation	Warehousing	All
	Customs Cargo Report	Commercial Invoice	UNCID, Interchange Rules
;	Customs Declaration		Syntax Implementation Guide
edit Advice	Customs Conveyance Report		Segments Directory
	Customs Response		Composites Directory
yment Order	Arrival Notice		Data Elements Code Lists
er	Booking Confirmation		
dvice	Firm Booking		
nent Order	Provisional Booking		
unts	Instructions Contract		
us	International Forwarding Framework		
	Shipping Instructions		
k Transactions	Container Acceptance Order		
e of Payment	Container Arrival Confirmation		
ayment Statistics	Container Arrival Information		
t Advice	Container Arrival Notice		
unt	Container Arrival Message		
tries	Container Departure Confirmation		
cellation	Container Customs Documents Expiration Notice		
ement	Container Departure Notice		
	Empty Container Disposition		
Credit Advice	Container Special Handling		

rnational, Houston, Texas.

Table B-16.

Examples of Selected UN/EDIFACT Messages Broken Down by Functional Area (Continued)

Engineering and management	Operations	Purchasing and product data	Manufacturing	Quality and safety	Finance
					Amendment of Documentary Credit Advice
					Direct Amendment of Documentary Credit
					Documentary Credit Amendment Information
					Request for Amendment
					Documentary Credit Approval
					Documentary Credit Application
					Response to Amendment of Documentary Credit
					Documentary Credit Issuance Information

Finance	Transportation	Warehousing	All
of Documentary	Container Inland Transport Order Notice		
ment of Credit	Container Inland Transport Order		
Credit Amendment	Container Inland Transport Order Response		
mendment	Container Inland Transport Space Request		
Credit Approval	Container Overland Message		
Credit Application	Container Prearrival Notice		
Amendment of Credit	Container Predeparture		
Credit Issuance	Container Pickup Information		
	Container Pickup Notice		
	Container Prearrival Message		
	Container Predeparture		

Listing of UN/EDIFACT Messages by Status and ASC X12 Transaction Sets

Listing of UN/EDIFACT Messages by Status and ASC X12 Transaction Sets

Table C-1
UN/EDIFACT Messages by Status

Tag	Message name	Status
APERAK	Application Error and Acknowledgment Message	0
AUTHOR	Authorization Message	0
BALANC	Trial Balance	0
BANSTA	Banking Status Message	1
BAPLIE	Bayplan/Stowage Plan Including Empty Space	2
BAPLTE	Bayplan/Stowage Plan (Total Numbers)	2
BOPBNK	Reporting of Bank's Transactions and Portfolio Transaction	0
BOPCUS	Reporting of Balance of Payment from Customer Transaction	0
BOPDIR	Direct Balance of Payment Declaration	0
BOPINF	Balance of Payment Information from Customer	0
BOPSTA	Exchange of Balance of Payment Statistics	0
CALINF	Call Information	0
CASINT	Case Initiation (Request for Legal Action)	0
CASRES	Case Response (Legal Response)	0
CHACCO	Chart of Accounts	0
CLAREQ	Classification General Request	0
CLASET	Classification Information Set	0
COACOR	Container Acceptance Order	0
COARCO	Container Arrival Confirmation	0
COARIN	Container Arrival Information	0
COARNO	Container Arrival Notice	0
COARRI	Container Arrival	0
CODECO	Container Departure Confirmation	0
CODENO	Container Customs Documents Expiration Notice	0
CODEPA	Container Departure	0
COEDOR	Empty Container Disposition Instructions	0
COHAOR	Container Special Handling Order	0
COITON	Container Inland Transport Order Notice	0

Note: Data from list developed by Henry Schlieper, IBM Germany Information Systems, provided at the September 1993 Joint Rapporteurs' Meeting in Berlin, Germany.

Table C-1.
UN/EDIFACT Messages by Status (Continued)

Tag	Message name	Status
COITOR	Container Inland Transport Order	0
COITOS	Container Inland Transport Order Response	0
COITSR	Container Inland Transport Space Request	0
COLADV	Advice of a Documentary Collection	0
COLREQ	Request for a Documentary Collection	0
COMDIS	Commercial Dispute Message	0
CONAPW	Advice on Pending Works	0
CONDPV	Construction — Direct Payment Valuation	2
CONDRA	Drawing Administration	0
CONDRO	Drawing Organization	0
CONEST	Construction — Establishment of Contract	2
CONITT	Construction — Invitation to Tender	2
CONTRL	Acknowledgment/Rejection/Advice (Part of future syntax)	
CONPVA	Construction — Payment Valuation Message	2
CONQVA	Construction — Quality Valuation Message	2
CONRPW	Response on Pending Works	0
CONTEN	Construction — Tender	2
CONWQD	Work Item Quantity Determination	0
COOVLA	Container Overland	0
COPARN	Container Prearrival Notice	0
COPDEM	Container Predeparture with Guidelines	0
COPINF	Container Pick-up Information	0
COPINO	Container Pick-up Notice	0
COPRAR	Container Prearrival	0
COPRDP	Container Predeparture	0
COREOR	Container Release Order	0
COSHLA	Container Shortlanded	0
COSTCO	Container Stuffing Confirmation	0
COSTOR	Container Stuffing Order	0
CREADV	Credit Advice	2
CREEXT	Extended Credit Service	2
CREMUL	Multiple Credit Advice	0
CURRAC	Current Account Message	0
CUSCAR	Customs Cargo Report	2
CUSDEC	Customs Declaration	2
CUSEXP	Customs Express Consignment Declaration	0
CUSREP	Customs Conveyance Report	2

Note: Data from list developed by Henry Schlieper, IBM Germany Information Systems, provided at the September 1993 Joint Rapporteurs' Meeting in Berlin, Germany.

Table C-1.
UN/EDIFACT Messages by Status (Continued)

Tag	Message name	Status
CUSRES	Customs Response	2
DEBADV	Debit Advice	2
DEBMUL	Multiple Debit Advice	0
DELFOR	Delivery Schedule	2
DELJIT	Just-in-Time Delivery	2
DESADV	Despatch Advice	2
DESTIM	Equipment Damage/Repair Estimate	0
DIRDEB	Direct Debit	1
DIRDEF	UN/EDIFACT Directory Definition	0
DOCADV	Advice of a Documentary Credit	1
DOCAMA	Advice of an Amendment of a Documentary Credit	0
DOCAMD	Direct Amendment of a Documentary Credit	0
DOCAMI	Documentary Credit Amendment Information	0
DOCAMR	Request for an Amendment of a Documentary Credit	0
DOCAPP	Documentary Credit Application	1
DOCARE	Response to an Amendment of a Documentary Credit	0
DOCINF	Documentary Credit Issuance Information	1
DOCISD	Direct Documentary Credit Issuance	0
DCOTRD	Direct Transfer of a Documentary Credit	0
DOCTRI	Documentary Credit Transfer Information	0
DOCTRR	Request to Transfer a Documentary Credit	0
ENTREC	Accounting Entries	0
FINCAN	Financial Cancellation Message	0
FINSTA	Financial Statement	0
FUNACK	Functional Acknowledgment	0
GATEAC	Gate and Intermodal Ramp Activities	0
GENRAL	General Purpose Message	0
GESMES	Generic Statistical Message	0
HANMOV	Cargo/Goods Handling and Movement	0
ICNOMO	Insurance Claims Notification	0
IFCSUM	International Forwarding and Consolidation Summary	2
IFTCCA	International Forwarding and Transport Shipment Charge Calculation	1
IFTDGN	Dangerous Goods Notification	0
IFTFCC	International Freight Costs and Other Charges	0
IFTIAG	Dangerous Cargo List	0
IFTMAN	Arrival Notice	2

Note: Data from list developed by Henry Schlieper, IBM Germany Information Systems, provided at the September 1993 Joint Rapporteurs' Meeting in Berlin, Germany.

Table C-1.
UN/EDIFACT Messages by Status (Continued)

Tag	Message name	Status
IFTMBC	Booking Confirmation	2
IFTMBF	Firm Booking	2
IFTMBP	Provisional Booking	2
IFTMFR	International Forwarding and Transport Message Framework	2
IFTMCS	Instruction Contract Status	2
IFTMIN	Shipping Instructions	2
IFTRIN	International Forwarding & Transport Rate Information	1
IFTSAI	International Forwarding & Transport Schedule & Availability Information	1
IFTSTA	International Multimodal Status Report	1
IFTSTQ	International Multimodal Status Request	0
INFENT	Enterprise Information	0
INSPRE	Insurance Premium Message	0
INTERS	Interchange Status	0
INVOIC	Commercial Invoice	2
INVRPT	Inventory Report	2
ITRGRP	In Transit Groupage	0
ITRRPT	In Transit Report Detail	0
JAPRES	Job Application Result	0
JIBILL	Joint Interest Billing Message	0
JINFDE	Job Information Demand	0
JOBAPP	Job Application Proposal	0
JOBCON	Job Offer Confirmation	0
JOBMOD	Job Offer Modification	0
JOBOFF	Job Offer	0
MEDPID	Patient Identification Details	0
MEDPRE	Medical Prescription	0
MEDREQ	Medical Service Request Message	0
MEDRPT	Medical Service Report	0
MEDRUC	Medical Resource Usage/Cost	0
MOVINS	Stowage Instructions	0
ORDCHG	Purchase Order Change Request	2
ORDERS	Purchase Order	2
ORDSP	Purchase Order Response	2
PARTIN	Party Information (Trading Partner Profile Data)	2
PAXLST	Passenger List	2
PAYDUC	Payroll Deduction Advice	2

Note: Data from list developed by Henry Schlieper, IBM Germany Information Systems, provided at the September 1993 Joint Rapporteurs' Meeting in Berlin, Germany.

Table C-1.
UN/EDIFACT Messages by Status (Continued)

Tag	Message name	Status
PAYEXT	Extended Payment Order	2
PAYMUL	Multiple Payment Order	1
PAYORD	Payment Order	2
PRICAT	Price Catalog	1
PRODEX	Product Exchange	0
PRPAID	Insurance Premium Payment	0
QALITY	Quality Data	2
QUOTES	Quotes	2
REACTR	Equipment Reservation, Release, Acceptance, and Termination	0
RECADV	Receiving Advice	0
RECECO	Credit Risk Cover Message	0
REINAC	Reinsurance Account Message	0
REMADV	Remittance Advice	2
REQDOC	Request for Document	0
REQOTE	Request for Quote	2
RESMSG	Reservation Message	0
RESREQ	Travel, Tourism, & Leisure Reservation Request (Interactive Message)	0
RESRSP	Travel, Tourism, & Leisure Reservation Response (Interactive Message)	0
SAFHAZ	Safety and Hazard Data Sheet	0
SANCRT	Sanitary/Phytosanitary Certificate	1
SLSFCT	Sales Forecast	0
SLSRPT	Sales Data Report	1
SSIMOD	Modification of Identity Details	0
SSRECH	Worker's Insurance History	0
SSREGW	Notification of Registration of a Worker	0
STATAC	Statement of Account	2
SUPCOT	Superannuation Contributions Advice	2
SUPMAN	Superannuation Maintenance Message	2
SUPRES	Supplier Response (Reservation Response)	0
TESTEX	Test Message Explicit Mode	0
TESTIM	Test Message Implicit Mode	0
VESDEP	Vessel Departure	0
WKGRDC	Work Grant Decision	0
WKGRRE	Work Grant Request	0

Note: Data from list developed by Henry Schlieper, IBM Germany Information Systems, provided at the September 1993 Joint Rapporteurs' Meeting in Berlin, Germany.

Electronic Data Interchange
Terms and Glossary

Electronic Data Interchange Terms and Glossary

TERMS

ANSI Standard	=	A document published by ANSI that has been approved through the consensus process of public announcement and review
Bureau	=	Office bearers (Chairman & Vice Chairman) of UN/ECE/WP.4 and the meeting of GE.1 and GE.2 and the WP.4 secretariat
CALS	=	Continuous Acquisition and Life-Cycle Support (formerly Computer-aided Acquisition and Logistics Support). DoD initiative to develop standards for electronic interchange of documents, such as engineering drawings and specifications, from defense contractors
CCITT	=	Consultative Committee on International Telegraphy and Telephony. Responsible for the establishment of international telecommunications standards
CEC	=	Commission of the European Communities. The governing body of the European Economic Community
Character set	=	A finite set of different characters that is complete for a given purpose
Code	=	A character string used as an abbreviated means of recording or identifying information, or to represent or identify information using a specific symbolic form that can be recognized by a computer

Component data element	=	A simple data element that is a subordinate portion of a composite data element and an interchange identified by its position within the composite data element
Composite data element	=	A construction of closely related data elements
Composite data element separator	=	A character used to separate component data elements in a composite data element
Conditional	=	A statement in a segment or message directory of a condition for the use of a segment, data element, composite, or component data element
Conformance analysis	=	Evaluation by an EDIFACT Board of a message type not intended for development as a UNSM, to establish its conformance to syntax, directories, and guidelines
Data element	=	The smallest meaningful piece of information in a business transaction. It condenses information into short code. Equivalent to a field in a paper document. Used to build data segments.
Data element attribute	=	A defined characteristic of a data element
Data element directory	=	A listing of identified, named, and described data element attributes, with specifications as to how the corresponding data element values shall be represented
Data element name	=	Language description identifying a data element concept
Data element representation	=	The format (e.g., numeric, alphabetic, variable length, etc.) of a data item
Data element tag	=	A unique identifier for a data element in a directory
Data element value	=	The specific entry of an identified data element represented as specified in the directory

D-4

Data segment	=	Equivalent to a record in a paper document and composed of a series of data elements
Delimiter	=	A character used for syntactical separation of data
DISA	=	Data Interchange Standards Association, Inc. A nonprofit organization funded by ASC X12 members that serves as secretariat for X12 and the Pan American EDIFACT Board. Not to be confused with the Defense Information Systems Agency
DRG	=	Directory Reference Group. The UN group that approves all changes to UNT-DID Directories
DSTU	=	Draft standard for trial use. An ASC X12 approved standard for use prior to approval by ANSI
EB	=	The EDIFACT Board. Advisory and support team for the UN/EDIFACT Rapporteurs of Pan America, Western Europe, Eastern Europe, Australia/New Zealand, and Japan/Singapore, and Africa
EC	=	European Community. The 12 member states of the European Economic Community
ECE	=	Economic Commission for Europe. A United Nations Regional Commission
EDI	=	Electronic data interchange. The computer-to-computer exchange of business information in a standard format
EFTA	=	European Free Trade Association. Comprises Austria, Finland, Iceland, Norway, Sweden, and Switzerland

Electronic commerce	= The integration of EDI, electronic mail/bulletin boards, electronic funds transfer, and internal automated processing into a comprehensive system supporting business transactions such as procurement, administration, finance, supply management, and transportation
Enveloping	= A function of EDI management software that groups documents of the same type (transaction set) and destination into an electronic envelope
Flat file	= A computer file used for transferring information from one program to another
Formal trial	= A (Status 1) phase in UNSM development, agreed to by WP.4, before a draft UNSM reaches the status of recommendation (Status 2)
Framework	= A template containing a sequenced set of all groups/segments that relate to a functional business area and applying to all messages defined for that area
Functional acknowledgment	= A function of EDI management software that sends a message from the receiver to the sender indicating receipt and interpretation
Functional group	= One or more messages of the same type containing header and trailer segments
Functional requirement	= Identification of the business or administrative needs to be met
Generic data element	= A qualified data element
GE.1	= Experts on data elements and automatic data interchange meeting in the framework of WP.4
GE.2	= Experts on procedures and documentation meeting in the framework of WP.4

GOSIP	=	Government Open Systems Interconnection Profile. The U.S. Government's adoption of OSI
Identifier	=	A character or group of characters used to identify or name an item of data
IGP	=	Intelligent gateway processor. Critical part of DoD's electronic infrastructure for electronic commerce
Implemention convention	=	A document providing guidance on how to implement an ASC X12 standard of a particular activity. DoD transaction set conventions include the instructions for implementing the control structure and definitions of the usage indicators and applicable codes
Implicit representation	=	The technique whereby the location of a data segment is implied from its relative position within the message
Interchange	=	Communication between partners in the form of a structured set of messages and service segments containing an interchange control header and trailer
Interchange agreement	=	A document (usually in the form of a user manual) that describes levels of syntax and messages and legal and security requirements
Interface program	=	A software program that defines the format for passing flat files between an application system and translation software
ISO 2382	=	ISO Data Processing Vocabulary
ISO 7372	=	*ISO Trade Data Elements Directory.* (Identical to sections 1, 2, 3, 4, and 9 of the UNTDED)
ISO 9735	=	ISO-issued international standard that reproduces the UN/EDIFACT Application Level Syntax Rules as agreed by WP.4

JRT	= Joint Rapporteurs' Team. Joint meeting of all rapporteur and advisory support teams
JTC/EDI	= Joint Technical Committee on Electronic Data Interchange (of Canada). Recently reconstituted as the Canadian Electronic Data Interchange Standards
Level	= Relative hierarchical position of a data segment within a message
Mandatory	= A statement in a segment or message directory that specifies that a segment, a data element, a composite data element, or a component data element must be used
Mapping	= The process of diagramming what EDI data are to be exchanged, how the data are to be used, and what application systems require the data
Maximum use	= Specifies the maximum number of occurrences allowed for a segment or a loop that may be repeated
MD1	= Trade — a message development group
MD2	= Transport: Rail/Road, Sea and Air — a message development group
MD3	= Customs and other Official Procedures — a message development group
MD4	= Finance: Banking and Insurance — a message development group
MD5	= Construction — a message development group
MD6	= Statistics — a message development group
MD7	= Insurance — a message development group

MD8	=	Tourism — a message development group
Message	=	A set of segments in the order specified in a message directory starting with the message header and ending with the message trailer (Source: ISO 9735) (equivalent to transaction data set)
Message code	=	A unique six-character alphabetic reference identifying a message type
Message diagram	=	A graphic representation of the sequence of segments within a message
Message type	=	An identified and structured set of data elements covering the requirements for a specified type of transaction
Nested segment	=	A segment that directly relates to another segment in an identified and structured group of segments covering the requirements for a specific message type
NSB	=	National standards body. An organization within a country charged with developing national standards and contributing to international standardization, i.e., ANSI
ODETTE	=	Organization for Data Exchange Through Telecommunications in Europe. ODETTE has an EDI standard used by the European Automotive Industry
Omission	=	Exclusion in a message of one or more units of data that are defined as conditional in a message-type specification
OSI	=	Open system Interconnectivity. Reference model for computer interconnections over electronic networks
PAEB	=	Pan American EDIFACT Board. Coordinates UN/EDIFACT development and maintenance with the other EDI Boards

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Progressive data transfer	= A technique allowing a sender to transfer a series of messages as more data become available. The recipient creates a business file for the eventual linking of all the data. Messages are linked by common referencing.
Protocol	= A set of rules governing information flow in an electronic communication system
Qualified data element	= A data element whose precise meaning is conveyed by an associated qualifier. (Qualified data segment — conveyed by an associated qualifier)
Qualifier	= A data element whose value shall be expressed as a code that gives specific meaning to the function of another data element or segment
Rapporteur	= A person nominated by his or her government and appointed by UN/ECE WP.4 to initiate and coordinate UN/EDIFACT development work in his or her geographical area of jurisdiction
Receiving secretariat	= The RT Secretariat that has received a new message request, change request, or code request and that fulfills secretariat duties until a supporting secretariat is assigned by the working group
Release	= A unique subissue of a directory set within a version. Releases define version publications (usually two per year).
Release character	= A character used to restore its original meaning. Any character used as a syntactical separator
Repeating segment	= A segment that may repeat in a message as specified in the relevant message-type specification
Requirement designator	= Specifies whether an element or segment is mandatory or conditional

RINET	=	Reinsurance and Insurance Network. An international network set up by eight European reinsurance companies
RT	=	Rapporteur Advisory and Support Team. A body of experts organized in committees providing coordinated input and support to the rapporteurs
Section control segment	=	A service segment used to separate header, detail, and summary sections of a message where necessary to avoid ambiguities in the message segment content
Segment	=	A predefined and identified set of functionally related data element values that are identified by their sequential positions within the transaction set
Segment code	=	A code that uniquely identifies each segment as specified in a directory
Segment directory	=	A listing of identified, named, described, and specified segments
Segment name	=	One or more words in a natural language identifying a data segment concept
Segment table	=	A graphic representation of the format and composition
Segment tag	=	A composite data element in which the first component data element contains a code that uniquely identifies a segment as specified in the relevant segment directory. (Additional component data elements can be conditionally used to indicate the hierarchical level and nesting relation in a message and the incidence of repetition of the segment)
Segment terminator	=	A syntax character indicating the end of a segment
Separator character	=	A character use for syntactical separation of data. (A delimiter)
Service data element	=	A data element used in service segments

Service segment	=	A segment required to service the interchange of user data
Service string advice	=	A character string at the beginning of an interchange defining syntactically delimiting characters and indicators used in the interchange
Simple data element	=	A data element containing a single value
Simple segment	=	A segment that requires no qualification. The meaning is fixed and explicit.
Status 0	=	Draft document (work is progressing but has not reached an advanced stage. Document issued for information only). Allocated by RT
Status 1	=	Draft recommendation (document has been approved by WP.4 for trial use). Similar to ASC X12 draft standards
Status 2	=	Recommendation (document has been approved by WP.4 as a formal recommendation and registered). Similar to ANSI standards
Subset	=	An extract of a message type for use within one industry or application. The subset usually indicates only those segments, elements, and code values needed by the industry or application
Summary section	=	The portion of the message that follows the body of the message and that contains summary information relating to the entire message
Supporting secretariat	=	The RT Secretariat assigned by a working group to support the working group activities that include responsibility for submission of all documentation
Syntax rules	=	Rules governing the structure of an interchange and its functional groups, messages, segments, and data elements (Source: ISO 9735)

TD-AP	=	Trade Data Interchange Application Protocol. A method for interchange of trade data messages based on international standards for the presentation and structuring of trade data transfers conveyed by teletransmission
Technical assessment	=	The process by which messages and supporting directories are evaluated for conformance to syntax, design, and syntax implementation rules
TEDIS	=	Trade Electronic Data Interchange Systems. A program of the CEC and EFTA
TRADACOMS	=	Trade Data Communications Standards. The ANA's published manual for EDI users in the United Kingdom
Trade data log	=	A collection of trade data transfers that provides a complete historical record of trade data interchanged
Trade data message	=	Data exchanged between parties concerned with the conclusion or performance of a trade transaction
Trade data transfer	=	One or more trade data messages sent together as one unit of dispatch that includes heading and terminating data
Trade Facilitation Organization	=	A national body coordinating or monitoring trade facilitation developments at a national level
Trade transaction	=	A specific contract for the purchase and sale or supply of goods and/or services and/or other performance between the parties concerned, identified as the transaction to which a trade data message refers
TRADE/WP.4/R....	=	A document issued by the ECE Secretariat in conjunction with the meetings
Trading Partner Agreement	=	A document that sets forth the rights and obligations of the trading partners

Trading partners	=	The sending and/or receiving parties involved in exchanging electronic business messages
Transaction set	=	The EDI equivalent of a paper business document primarily comprising data elements and data segments. Equivalent to the EDIFACT message
UN/ECE	=	United Nations/Economic Commission for Europe. One of five regional UN commissions comprising North America, Western Europe, and Eastern Europe
UN/JEDI	=	United Nations Joint EDI. An ad hoc group of WP.4 formed in 1986
UN layout key	=	A pro-forma document used for indicating spaces reserved for certain statements appearing in international trade documents in an integrated system
UNSM	=	United Nations Standard Message. A standard EDIFACT message that has been registered with the UN/ECE WP.4 and is to be used in electronic data interchange between business partners
UNTDED	=	*United Nations Trade Data Elements Directory*, a part of which constitutes ISO 7372 and defines standard data elements and associated codes. UNTDED is jointly maintained by UN/ECE and ISO
UNTDID	=	*United Nations Trade Data Interchange Directory*. It includes the UN/EDIFACT: ISO 9735, MDG, SIG, EDED, EDCL, EDCD, EDSD, and EDMD. It also includes the UNCID
User data segment	=	A segment containing application data
VAN	=	Value-added network. A service provider that transmits, receives, and stores EDI messages for trading partners, as well as other EDI-related functions
Version	=	An issue of a directory set

Version number	=	A number identifying a version issue. Used in Data Element 0052 in EDIFACT interchanges to identify the correct directory set base for the interchange messages
Version/release	=	The periodic issue of EDIFACT directory sets
WP.4	=	Working Party 4 on Facilitation of International Trade Procedures (UN/ECE/WP.4). Responsible for various EDI initiatives
X.400	=	CCITT's message handling specification, initially for electronic mail interchange and recently EDI
X.500	=	CCITT standard for electronic directory of electronic mail addresses

GLOSSARY

AIAG	=	Automotive Industry Action Group
ANA	=	Article Number Association
ANEB	=	Australia/New Zealand EDIFACT Board
ANSI	=	American National Standards Institute
ASC X12	=	Accredited Standards Committee X12
ASYCUDA	=	Automated System for Customs Data
AUSTRIAPRO	=	Austrian trade facilities organization
AWG	=	Awareness Group (under the Western European EDIFACT Board)
BMG	=	JRT Business Modeling Group
CALS	=	Continuous Acquisition and Life-Cycle Support (formerly Computer-aided Acquisition and Logistics Support)
CCC	=	Customs Cooperation Council

CCITT	= Consultative Committee on International Telegraphy and Telephony
CCL	= Consolidated Code List
CEBIS	= The Commissions EDIFACT Board Information System
CEC	= Commission of the European Communities
CEFIC	= European Chemical Industry Federations
CEN	= European Committee for Standardization
CIM	= corporate information management
CIT	= International Railways Transport Committee
CRP	= Conference Room Paper
DAASO	= Defense Automatic Addressing System Office
DCE	= Defense CALS Executive
DFAS	= Defense Finance and Accounting Service
DFAS — CO	= Defense Finance and Accounting Service — Columbus
DISA	= Data Interchange Standards Association, Inc.
DLA	= Defense Logistics Agency
DLMSO	= Defense Logistics Management Systems Office
DMRD	= Defense Management Report Decision
DRG	= Directory Reference Group
DSTU	= draft standard for trial use
EA	= Executive Agent

EAN	= International Article Numbering Association
EB	= The EDIFACT Board
EC	= electronic commerce or European Community
ECE	= Economic Commission for Europe
EDCD	= *EDIFACT Composite Data Elements Directory* (included in the UNTDID)
EDCL	= EDIFACT Code List (included in the UNTDID)
EDED	= *EDIFACT Data Elements Directory* [included in UNTDID (a subset of the UNTDED)]
EDI	= electronic data interchange
EDIA	= Electronic Data Interchange Association (formerly TDCC)
EDIFACT	= Electronic Data Interchange for Administration, Commerce, and Transport
EDIFICE	= Electronic Data Interchange Forum for Companies with Interests in Computing and Electronics
EDIFRANCE	= French organization supporting EDIFACT
EDMD	= *EDIFACT Message Directory* (included in the UNTDID)
EDSD	= *EDIFACT Segments Directory* (included in the UNTDID)
EEC	= European Economic Community (12 nations)
EEEB	= Eastern Europe EDIFACT Board
EFTA	= European Free Trade Association
ESD	= EDIFACT Standards Development

ETAG	=	EDIFACT Technical Assessment Group
FAR	=	Federal Acquisition Regulation
FIATA	=	International Federation of Freight For-warders Association
FIPS	=	Federal Information Processing Standard
FMS	=	foreign military sales
FTAM	=	file transfer, access, and management
GATEC	=	government acquisition through elec-tronic commerce
GATT	=	General Agreement on Tariffs and Trade
GOSIP	=	Government Open Systems Interconnec-tion Profile
GTDI	=	Guidelines for Trade Data Interchange
IAPH	=	International Association of Ports and Harbors
IATA	=	International Air Transport Association
IC	=	implementation convention
ICAA	=	International Civil Airports Association
ICAO	=	International Civil Aviation Organization
ICC	=	International Chamber of Commerce
ICS	=	International Chamber of Shipping
IDEA	=	International Data Exchange Association
IEC	=	International Electrotechnical Commis-sion
I-EDI	=	JRT Interactive EDI Group
IGC	=	JRT Message Implementation Guidelines Group

IGP	=	intelligent gateway processor
IMO	=	International Maritime Organization
IPMS	=	Inter-Personal Messaging Service
IRU	=	International Road Transport Union
ISDN	=	integrated services digital network
ISO	=	International Standards Organization (based in Geneva)
ISSB	=	Information Systems Standards Board
ITU	=	International Telecommunications Union
JEC	=	Japan EDIFACT Committee
JEDI	=	Joint Electronic Data Interchange
JRT	=	Joint Rapporteurs Team
JSEB	=	Japan and Singapore EDIFACT Board
JTC1	=	Joint Technical Committee No. 1, Information Technology, of the ISO/IEC
LMI	=	Logistics Management Institute
MAG	=	Maintenance Group (under the Western European EDIFACT Board)
MD	=	Message Development
MDG	=	Message Design Guidelines
MODELS	=	Modernization of Defense Logistics Standard Systems
NAEB	=	North American EDIFACT Board (now the Pan American EDIFACT Board)
NIST	=	National Institute of Standards and Technology
NSB	=	National Standards Body

ODETTE	=	Organization for Data Exchange Through Telecommunications in Europe
OPM	=	*ASC X12 Organization and Procedures Manual*
OSI	=	open system interconnectivity
PAEB	=	Pan American EDIFACT Board
PDG	=	Procedures and Documentation Group (under the Western European EDIFACT Board)
PRB	=	Procedures Review Board
RFQ	=	Request for Quote
RINET	=	Reinsurance and Insurance Network
RT	=	Rapporteur Advisory and Support Team
SCC - JTC/EDI	=	Standards Council of Canada Joint Technical Committee on Electronic Data Interchange
SDG	=	UN/EDIFACT — ISO Syntax Development Group
SEC	=	Singapore EDIFACT Committee
SIG	=	Syntax Implementation Guidelines
SITPRO	=	Simpler Trade Procedures Board
SJG	=	JRT Security Joint Group
SM	=	Standard messages
SWG-EDI	=	Special Working Group on EDI of ISO JTC1
SWIFT	=	Society for Worldwide Interbank Financial Telecommunications
TAG	=	Technical Assessment Group (under the Western European EDIFACT Board)

TC 154	=	ISO Technical Committee 154 for Documents and Data Elements in Administration, Commerce, and Industry
TCC	=	Technical Coordinating Committee
TD-AP	=	Trade Data Interchange Application Protocol
TDCC	=	Transportation Data Coordinating Committee (now EDIA)
TEDIS	=	Trade Electronic Data Interchange Systems
TPA	=	trading partner agreement
TRADACOMS	=	Trade Data Communications Standards
UCC	=	Uniform Code Council, Inc.
UCS	=	Uniform Communication Standard (EDI standard used by the grocery industry)
UIC	=	International Union of Railways
UIRR	=	Union of International Rail/Road Transport
U.K.	=	United Kingdom
UN	=	United Nations
UNCID	=	Uniform Rules of Conduct for the Interchange of Trade Data
UNCITRAL	=	United Nations Commission on International Trade Law
UNCTAD	=	United Nations Conference on Trade and Development
UN/ECE	=	United Nations/Economic Commission for Europe
UN/EDIFACT	=	United Nations Electronic Data Interchange for Administration, Commerce, and Transport

UNIDO	=	United Nations Industrial Development Organization
UN/JEDI	=	United Nations Joint EDI
UNSM	=	United Nations Standard Message
UNTDED	=	*United Nations Trade Data Elements Directory*
UNTDID	=	*United Nations Trade Data Interchange Directory*
VAN	=	value added network
WEEB	=	Western European EDIFACT Board
WP.4	=	Working Party 4